Governance and management of veterinary laboratories

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Summary
This paper describes those components of governance and management of a public veterinary laboratory that are deemed essential for the effective delivery of a diagnostic service. Whilst broadly applicable to all veterinary diagnostic services, there is a focus on publicly supported veterinary diagnostic laboratories in developing countries, highlighting the critical components that should be established as a minimum. The need for establishing overarching ownership, governance and resourcing is emphasised but followed by a detailed account of the components of diagnostic service management and delivery, linked to a description of the key support services that are essential in assisting delivery. Elements of quality assurance and compliance are described, with an emphasis on the need to both understand and meet the regulatory environment in which a diagnostic laboratory now operates. The outputs from a veterinary laboratory must be rooted in sound science, and mechanisms must be in place to prevent corrupt practices and inappropriate political influences.

Keywords

Introduction
Laboratories fulfil an essential supporting role for the delivery of veterinary services. Without the services, data and information supplied by veterinary laboratories, activities in animal disease detection, control and prevention would be significantly weakened. The key roles of veterinary laboratories in support of Veterinary Services have been described by Schmitt (4), but in the modern era these roles can be provided by governments (public-sector laboratories), by industry (private-sector laboratories), by universities (university laboratories) or by external organisations. In reality, in most cases there is a combination of the above, and this creates challenges in the management of service delivery and expectations. Furthermore, many veterinary laboratories also have additional roles as reference laboratories, collaborating centres and centres of excellence, and provide research, public health and food safety services, commercial services for the pharmaceutical and livestock industries, and technical support for clinical work by private veterinarians. To further compound the issues, the governance of public-sector veterinary laboratories varies markedly from country to country, and there is no single template that can be considered ‘ideal’ or indeed ‘typical’ in this regard. The purpose of this paper is to set out the principles of public-sector veterinary laboratory governance and management that can be applied, whatever the structural model, to ensure that Veterinary Services have access to reliable, trustworthy laboratory services, data and advice. Each of the headings in this paper represents a component of the overall governance framework needed to ensure strong and effective delivery of services by laboratories in a manner that is politically accountable, transparent, ethical, forward-looking and fair to staff and customers.
Ownership

In the past, most national animal health authorities established and operated either a centralised veterinary laboratory or a set of regional laboratories as part of a government organisation delivering animal health services under the control of the chief veterinary officer (CVO). In many developing countries this is still the case, but in most developed countries there has been a tendency to separate the ownership role from that of the end-user or customer of the laboratory services. This may mean that governments go so far as to rely on a fully privatised laboratory service or, more commonly, that they rely on laboratories that are publicly owned but are kept at arm’s length from the policy-making activities of central government. In larger countries with a federal or regional system of government there may be additional layers of ownership, with individual state-owned laboratories providing services to their respective authorities, plus a central laboratory operated by the federal/national government. This can create real challenges in terms of the extent of services delivered, reporting and accountability, resourcing, and the competing range of activities to be undertaken. Gaining clarity around these issues is essential for effective service delivery and overall governance.

Accountability and oversight

A veterinary laboratory is now held accountable for a range of issues apart from the delivery of basic diagnostic services. These may include health and safety, biosecurity, animal welfare and ethics, environmental contamination, genetic manipulations and quality assurance. It is essential that processes are established for the management and reporting of these issues and that individuals are held accountable for their formally delegated responsibilities. As part of the process, it is critical to recognise and manage the resource implications, as failure to deliver to these accountabilities can have profound implications for the laboratory and senior management.

For larger laboratories, and typically for a national veterinary laboratory, the performance of the laboratory director and the senior management team should be overseen by a governing body. With smaller laboratories, and those in which the director reports directly to the CVO as owner, this might be achievable as a one-to-one relationship but, more generally speaking, it is advisable to have a governing board with an independent chairman who understands both the political and the scientific environments in which the laboratory operates. The governing board should advise the director on how to meet the expectations of the customers and owners of the laboratory, but should also represent the laboratory’s interests by ensuring that these customers and owners have realistic expectations of the laboratory’s capability.

It is important for a laboratory to develop a medium-term strategic plan, extending perhaps three to five years into the future, and also a more detailed business plan for the year ahead, including budgets and resources to be deployed on various activities. The director of the laboratory should be responsible for presenting these plans to the governing board for formal approval. The governing board should also have a role in approving the annual report of the laboratory and assessing the performance of the director.

In considering the role of the board, it is useful to look at the activities of corporate company boards, as they operate according to a similar model. As mentioned above, these activities include financial oversight, strategy, public relations and chief executive officer (director) accountability. It is important in appointing the board to focus on a representational rather than a skills-based membership and to agree lines of reporting for the chairman of the board independently from the laboratory management team.

The governing board must not become involved with the operational management of the laboratory, which must remain firmly in the hands of the director and the management team.

Executive management

It is essential that operational activities in the laboratory are conducted under the authority of a single individual who is given an appropriate title, e.g. director or chief executive. The director (or equivalent) should be fully accountable for the delivery of outputs from the laboratory and for the deployment of resources within the institution. Many would say that to be fully effective the director should not only be a qualified veterinarian, but also have personal experience of working in a laboratory environment. Nevertheless, there are examples of very effective and successful laboratories with non-veterinary scientists, or even professional management executives, in the director’s role. The key attributes of the director are to have an understanding of the operating environment of laboratory work, to be fully aware of the end-user requirements (10) so that the outputs are relevant, trustworthy and timely and, above all, to demonstrate leadership qualities that will motivate the laboratory staff to deliver their best.

The director should be supported by a senior management team whose members will lead specific aspects of the work of the laboratory. The size of this team, and the scope of their individual responsibilities, will depend on the size of
the laboratory, but it will typically involve leaders of different scientific disciplines (e.g. pathology, bacteriology, virology) as well as business leaders with expertise in human resources (HR), finance, procurement, engineering, information technology (IT) and communication. At least one of the senior team should be designated deputy director; the deputy will work closely with and in support of the director and fulfil the director's responsibilities in his or her absence.

Some examples of the detailed elements involved in performance management of a veterinary laboratory can be found in the performance indicator document that was developed in the context of rinderpest eradication by the Animal Protection and Health Section of the International Atomic Energy Agency (IAEA) (3). Figure 1 shows an example of the organisational elements that may go to make up a medium-sized to large veterinary laboratory, although the exact composition will vary according to the remit and scope of the laboratory's activities.

Infrastructure

Laboratories are highly specialised infrastructures with very particular requirements in terms of buildings, services and operational environments. Although some smaller laboratories can operate within an adapted general-purpose building, it is highly recommended that veterinary laboratories are housed in purpose-built units, designed with considerable input from scientific staff, along with architects, environmental experts, safety advisers and others in the design team. Local issues must also be taken into account, such as the likelihood of extreme conditions (high or low temperatures, earthquakes, hurricanes, floods) and the reliability of water and electricity supplies. Where new facilities are planned, it is strongly advised that representatives of the design team make familiarisation visits to similar laboratories in other parts of the world to learn from their experiences. Current requirements for biocontainment, biosafety and minimal environmental impact mean that it is increasingly difficult to operate in older laboratory buildings, although there are some good examples in which these have been satisfactorily adapted. Whatever route is chosen, national authorities must recognise that laboratories, whilst very expensive to build, are equally expensive to operate and maintain. It is absolutely essential that an adequate budget be allocated for annual operating costs (see section on finance below) as well as the initial building costs. Far too often, the capital costs are allocated for building a laboratory without any provision for operating the facility. This is an often repeated recipe for disaster.

The infrastructure required to support a modern diagnostic laboratory should never be underestimated in terms of engineering complexity, specialised requirements and future proofing. As an example, the IT data support requirements continue to change at a remarkable rate, as witnessed by the change from co-axial cabling, to fibre-optic cabling to wireless-based data transmission. Whilst the initial build design should contain the latest features,
care should be taken to anticipate future needs. An additional area of importance is the management of the utility costs. Creating an infrastructure that reduces power and water use and minimises waste generation will bring considerable cost savings for the future (see also section on environment below). Fortunately, many structures of this nature have been built in the past few years, providing plenty of reference material for review.

Human resources

A veterinary laboratory, like any organisation employing staff, must have a clear, transparent HR policy that is seen to treat all individuals fairly. Appropriate procedures should be in place to determine remuneration, performance management, appraisal and promotion. A robust mechanism for addressing poor performance is also essential; it should provide clear and fair procedures for dismissal, in extreme circumstances. Veterinary laboratories employ an unusually high proportion of specialised staff, and this can cause difficulties when work patterns change as new technologies are introduced. Human resource policies should include training programmes to ensure that all staff are developed to their full potential.

Compliance

Quality assurance

Ensuring that laboratory work is carried out in a quality-assured manner is now a prerequisite for any diagnostic laboratory (7, 9) and may well be a national legal requirement for certain types of testing. Beyond this, end-users of laboratory data and test results are often unfamiliar with the limitations inherent in such data. Laboratory scientists recognise that even the most sophisticated equipment has an element of measurement uncertainty, while the innate variability of biological systems means that all results should be considered in the context of confidence limits. For practical reasons, such confidence limits are rarely stated explicitly when reporting test results. The task of the laboratory is to ensure that all of its procedures, not just those concerning the laboratory bench but also those for supporting documentation and computer records, are as robust, reliable and repeatable as can possibly be achieved. The process to realise this aim is termed ‘quality management’ (Fig. 2).

All laboratories should have a documented quality system. Not all will have the resources, or even the need, to seek third-party accreditation for this. The World Organisation for Animal Health (OIE) Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (Terrestrial Manual) and Manual of Diagnostic Tests for Aquatic Animals (7, 9) provide a useful introduction to the principles of quality management. These include defining the scope of a laboratory’s testing activities, the selection, optimisation and validation of test methods, and procedures to demonstrate proficiency in the test.

For those laboratories, particularly in developed countries, for which third-party accreditation is seen as desirable or even a requirement, the OIE has developed a formal quality standard for veterinary laboratories (8) against which they can be assessed by official accrediting bodies and which is considered as a specific interpretation of the general quality standard set by the International Organization for Standardization (ISO 17025:2005) (2). Accreditation to these standards will ensure not only the provision of quality-assured diagnostic services but also of a range of ancillary support activities such as corrective action reporting and staff training. As a minimum, all veterinary laboratories should strive to operate to these standards and, wherever possible, to seek formal accreditation from their national accrediting body.

For those laboratories not yet accredited, a plan should be developed to ensure their progression towards this goal. Support is available internationally (through the OIE, through the Food and Agriculture Organization of the United Nations [FAO] and through the Joint FAO/IAEA Division) to help laboratories reach this standard.

The quality standards require that diagnostic tests used in the laboratory should be validated as fit for purpose (2, 8). Validation is not a once-for-all procedure but requires continual monitoring and refinement as the test is used. The OIE has established a detailed approach for diagnostic test validation, which is equally applicable at both national and international levels. Laboratories should strive at all times to use tests that have reached at least stage 3 on the...
Health and safety

Veterinary laboratories are hazardous environments. Depending on the nature of individual laboratories’ remits there are risks from handling dangerous pathogens, hazardous chemicals, physical hazards (ionising radiation, fire, high-pressure steam, low-temperature vessels) and animals (bites, kicks, crushing, etc.). The laboratory must have procedures in place to assess all risks to staff (and visitors) and to mitigate those risks to the greatest extent possible. In addition, veterinary laboratories have a responsibility to contain pathogens and to prevent accidental release that might threaten neighbouring human or animal populations.

Managing health and safety (H&S) in a transparent and documented manner is now a prerequisite for national entities such as laboratories. For the most part this is a legal requirement and will require a full understanding of the applicable national H&S legislation. More detailed guidance on biosafety management is given in the OIE Terrestrial Manual and the World Health Organization (WHO) Laboratory Biosafety Manual. All veterinary laboratories should comply with the relevant standards in these documents and adhere to national standards. As a minimum, an H&S committee should be established consisting of representatives from both staff and management of the laboratory. A requirement for such committee structures and operations is usually included in legislation, and the laboratory managers must be fully conversant with these defined processes, including the appointment of H&S representatives, actions and reporting procedures for all H&S incidents, H&S training requirements and the minimum laboratory infrastructures and processes to meet these requirements (Fig. 3).

Biosecurity

Increasingly, the safe containment of pathogens managed as part of the diagnostic process must meet a range of biosecurity requirements. In some countries there may be particular requirements for handling ‘select agents’ that are deemed to be potential bioterrorist pathogens. Whilst this approach is in its infancy for many laboratories, where applied it requires a high level of compliance and is resource intensive. In most countries, even if there is no specific list of potential bioterrorist pathogens, biocontainment procedures and regulations are being applied to an increasing range of pathogens. Laboratories are required to be fully conversant with, and adherent to, these procedures. It is likely that the list of pathogens that must be handled at pathogen containment (PC) levels 3 and 4 will continue to grow and that the regulations governing PC3 and PC4 will become increasingly complex. In many countries there is a national compliance monitoring authority for biosecurity and/or biocontainment. This authority will inspect the laboratory on a regular basis to ensure compliance. The laboratory managers must understand these regulations and ensure that sufficient resources are available to ensure compliance. Overall, the trend is for increasing regulation and demand for resources in this area, and it presents a challenge for many veterinary laboratories.

Whilst minimum legal requirements exist, individual laboratories should examine their processes and procedures to determine where elements of biosecurity risk may arise and how these should be managed on a local basis. For a PC3 and/or PC4 laboratory there is a requirement for a microbiological manual that contains standard operating procedures (SOPs) for all activities. It is a prudent exercise to develop SOPs for all microbiological procedures that are undertaken at the laboratory, whatever the biocontainment classification. Such SOPs should highlight biosecurity controls, and it is recommended that local procedures are put in place to manage non-compliance. This is a matter of good laboratory practice, regardless of the legislative background. SOPs for almost all processes are now available via the Internet and, with local adaptation, will provide an excellent template from which to work.

An increasing area of concern for those laboratories working with potential bioterrorist pathogens is the concept of the insider threat (e.g. the bioterrorist threat posed by a staff member). It is a matter of prudent management to develop a process through which this threat can be managed. An annual staff threat appraisal would be a minimum requirement in such circumstances. In addition, measures must be in place to control access by visiting scientists to this class of pathogens.
**Animal welfare**

Whilst management of animal welfare and associated ethical issues will be applicable only to those laboratories that use animals for diagnostic or research purposes, the application of regulations in this area is rapidly growing and can attract intense public scrutiny. If animals are utilised in this way in the laboratory, it is essential to understand fully the national legislation governing their use and put in place processes to ensure compliance. This can be a difficult area, often requiring a significant change of culture and an appreciation of the additional workload attached to compliance. For many developing countries, this may be seen as an unnecessary burden and without relevance, but a full appreciation of the public concern in this area is seriously warranted and early compliance an entirely sensible approach. The desire for transparency and openness on the use of animals may need to be balanced against the threat of disruption from animal rights activists. Close cooperation may be needed between laboratory management and national security services.

**Gene regulation**

Many laboratories now use modified genes or gene products in their activities. In most developed countries significant regulations are now in place governing their use. Although they can be somewhat restrictive and often overlap with the regulations for biocontainment and biosafety, they are usually heavily monitored and there are penalties for non-compliance. It is essential that laboratory managers are fully aware of the regulations that apply and that they put in place internal processes to monitor and ensure compliance.

**Environment**

Laboratories have an underlying propensity to create environmental pollution and degradation both through the processes undertaken as well as through laboratory discharges. The risk of environmental damage from carcass disposal, for example, is an issue that requires focused attention. Certification of compliance with standard ISO 14001:2004 (Environmental Management Systems [11]) is now available and should be a target for laboratory managers. Understanding and managing, as far as possible, the negative impacts of the laboratory on the surrounding environment is important and is increasingly an area demanding regulatory compliance.

**Scientific services**

**Diagnostic service delivery**

Veterinary Services must be very clear in specifying what they require from a laboratory. They must tell laboratories, for example, what disease testing capability is needed, how many submissions of any particular type are anticipated, the depth of confirmatory testing required, the likely scheduling of submissions, and the required turnaround time for test reports. There should then be a dialogue with the laboratory managers, who can elaborate on the level of service that can be delivered and at what cost. It is good practice for the results of such a negotiation to be embodied in a formal written document, which may be termed a memorandum of understanding, a service level agreement or even a contract, depending on the nature of the relationship between laboratory and Veterinary Services.

In order for those in receipt of these services to have confidence in the results being provided, the laboratory should have, or be seeking to attain, national accreditation to international quality standards such as ISO 17025:2005 or the OIE quality standard described in the section on quality assurance above.

A key additional component of accreditation is the routine monitoring, calibration and maintenance of scientific equipment. In the developing country this can be a real challenge in terms of both the resources to maintain the process and the availability of trained engineers and calibration equipment. Although potentially resource intensive, managing scientific equipment is a vital component of delivering a quality diagnostic service and should be a priority for resource allocation.

It is essential that provision is also made for the laboratory services that will be required in a disease emergency. The laboratory must be clear as to its maximum (surge) capacity for processing samples in the face of a disease emergency and how quickly it can scale up operations towards the maximum capacity. Test turnaround times are also an important element in this specification. It should be understood by all parties, preferably as part of written agreements, that ‘peace time’ activities may need to be put on hold to enable the laboratory to divert resources towards the emergency testing.

Central veterinary laboratories with special expertise in particular areas may seek recognition from international bodies such as the OIE, FAO or WHO as reference laboratories or collaborating centres. This should be encouraged, as it facilitates the harmonisation of laboratory procedures worldwide, and strongly supports the work of the OIE and other international organisations. Funding for reference laboratory status needs to be allocated from national sources, and this should be part of the overarching agreements between the laboratory director and Veterinary Services.

Many veterinary laboratories carry out work for a range of different customers. As well as meeting the needs of
Veterinary Services, the laboratory may conduct contract work for national or international parties, provide diagnostic and surveillance procedures for private veterinarians, veterinary organisations or livestock industries, test food or environmental samples for food safety or other public health reasons, perform regulatory testing of veterinary medicinal products, and carry out contract testing for the private-sector, e.g. for pharmaceutical companies. It is the responsibility of the laboratory director and management team to ensure that a balanced approach is taken in the allocation of resources in order to deliver this complex array of services. There should be a clear recognition of priorities to facilitate dealing with unexpected events such as disease emergencies.

Research

All but the smallest of laboratories are likely to engage in a certain amount of research. For some this may be a major and high-profile activity. It is essential to manage effectively the balance between research and diagnostic service delivery. All too easily, the two activities can compete for resources, including staff time. With the advent of full accreditation for diagnostic services, many laboratories opt to manage these separately from research, even though both functions continue on the same site. Such an approach has a number of advantages, but it must not be allowed to diminish the value of, or recognition for, the work of the diagnostician. The management system for the laboratory should be relevant to both research and diagnostics, incorporate agreed and appropriate deliverables for each, be seen as fair to all staff and be workable within the available resources. Whatever the approach, it will need to be reviewed on a regular basis as requirements and opportunities change.

Support services

Information management

Modern laboratories are hugely dependent on computerised systems to manage their data. This can include an all-encompassing laboratory information management system (LIMS), bespoke systems for controlling individual laboratory equipment, and sophisticated analytical systems for use by specialised information scientists in disciplines such as molecular biology, informatics, epidemiology, risk analysis and statistics. There will also be office support systems for word processing, finance, HR and bibliographic databases. Larger laboratories will have these systems networked to a greater or lesser extent, and in some cases multi-site institutions will participate in wider networks. As with other elements of the laboratory's activities, it is essential that the computer systems are managed by competent professionals and that the scientific staff are clear in specifying the services they require. Measures must be in place to protect the integrity of the data, for archiving and retrieval, and for privacy protection of personal or sensitive items. It is important that the laboratory clearly determines its needs and procures the necessary resources, either through a service contract with an IT support company or through the direct employment of IT professionals, so as to provide adequate support in this important area.

There are a number of LIMS systems available commercially, but many of them were developed for medical or other types of laboratory and may not fully meet the needs of veterinary laboratories. Here again, the experience of other laboratories around the world can be of great assistance.

Finance

The management team at the laboratory needs to have a very clear handle on the finances. All costs should be identified and allocated to the appropriate area of activity, so that the total cost of delivering any particular service can be identified. A simplistic approach is to consider operating costs, capital equipment costs and depreciation. This last is an essential component and, if managed appropriately, will allow for capital upgrades and refurbishment of laboratories when required. The operating costs should include directly attributable items (such as reagents and equipment), staff time per procedure, administration (booking in samples, generating reports), capital equipment (the cost of which may need to be spread across multiple activities or projects) and an appropriate proportion of overhead costs (covering such items as management, buildings, utilities, computers, safety and quality procedures, and storage and archiving of samples and records). Making use of all this information, the management team should determine the total costs of operating the laboratory, broken down into specific areas, to enable a budget bid to be prepared for approval by the governing body. This budget will form an integral part of the annual business plan and will set a basis for negotiation with customers and funders. The director should be personally accountable for delivering the work programme of the laboratory within budget, while individual managers of projects or activities should be set delegated delivery and financial targets. For any but the smallest of laboratories, the director should be supported in this area by one or more finance professionals, and for larger laboratories the senior finance officer should be a member of the executive management team.

Cost control is an essential part of laboratory management. Continual efforts should be made to improve efficiency without compromising on quality. It is to be expected that
customers will seek to minimise costs at all times; however, it is also important that Veterinary Services, or other laboratory customers, recognise the complexity of the cost model. In times of financial stringency, there is often a proposal to cease a particular project or activity at a laboratory. It is unlikely, however, that this will save the full costs of that activity because the overhead costs at the laboratory will remain and will need to be spread over the remaining activities that are to continue.

For publicly funded laboratories there is a general trend towards decreasing the government contribution and increasing the need for cost recovery on services delivered. This can extend beyond the basic diagnostic services into disease investigations and research. This can generate serious conflicts of interest in terms of both overall laboratory governance and individual motivation and reward.

It is important to review regularly the overall laboratory objectives and agreed deliverables with government to ensure transparency and a meeting of expectations. Staff should be kept informed on such deliverables, understand priorities and not feel unduly threatened by the need to ensure financial security for the laboratory. They will potentially feel conflicting and competing pressures with regards to the activities that need to be undertaken, and the director should continually provide leadership and guidance to staff on these issues. Checks and balances will need to be in place to ensure that the laboratory can meet government expectations while at the same time undertaking income-generating activities essential to ‘balancing the books’.

For many laboratories, revenue generation through the sale of services and products is an important component in their financial infrastructure. There may be political constraints that determine whether such activities can make a profit, break even or be subsidised from the public purse. In other words, the laboratory must set out a transparent pricing policy. There may also be incentives for staff based on revenue generated, but, again, the basis for this must be open and transparent and safeguards must be instituted to prevent bribery and corruption.

**Procurement**

The laboratory should appoint professional procurement officers, either as staff members or as an outsourced service. The scientific staff of the laboratory should prepare a very detailed specification of their requirements, whether for reagent supplies, equipment, or external provision of services. If the specification is well prepared, then the procurement team will be able to negotiate with suppliers to obtain the best value for money concomitant with the required product quality. In some countries, the procurement process may be regulated by law, and for higher value items a tendering procedure is the norm. This must be seen to be transparent and fair. Conflicts of interest must be declared. Clear rules must be in place to prevent undue pressure or bribery being applied to procurement officers by suppliers. This is a well-recognised risk and must be monitored closely by the senior management of the laboratory and, if necessary, by the governing body.

**Health and safety**

The requirements for H&S policies and procedures have been elaborated above in the section on health and safety. These will be achieved only with adequate support. Except in very small laboratories, appointing an H&S professional should be a serious consideration, and this should be linked to an appropriate H&S budget. The role of the H&S professional must be clearly defined, and other staff members should understand that the presence of an H&S professional does not mean that they are any less responsible for carrying out their work in a safe and responsible manner, in compliance with agreed protocols. The H&S professional will support the executive management team in matters such as H&S policy development, safety incident reporting and response activities, and the operation of the H&S committee. It is essential that laboratory personnel allow adequate time to address H&S issues and that a proactive biosafety and H&S culture exists.

**Engineering and maintenance**

A modern veterinary diagnostic laboratory provides a significant engineering challenge. It will therefore require substantial and adequate engineering maintenance and support. It is possible to outsource many of these maintenance requirements, but in many cases an in-house capability may better serve the need. Newer facilities may appear superficially to require less maintenance, but the engineering support systems are concomitantly more sophisticated and require expert skills and knowledge. Under-resourcing can prove costly and harmful to service delivery. Most laboratories have site-specific needs and requirements that are best met with a reasonable complement of engineering and trade skills on site, with staff who are familiar with local needs and issues. Regrettably, this is seldom seen as a priority until things go wrong. The laboratory managers need to continually review how best to supply these support services (Fig. 4).

**Communications and transparency**

Communications are regrettably often seen as a second-order priority. Good communications are vital to the
success of a laboratory enterprise. This includes internal communications within the laboratory, ensuring that all staff are aware of the current priorities and how these impact on their work individually, as well as the wider activities of the laboratory, and how their efforts contribute to the whole. It is essential that senior management have a system for communicating to staff at all levels and that this process genuinely works both ways. Senior managers must make efforts to be aware of the concerns and aspirations of their staff.

Externally, the director and management team have a key presentational role for the laboratory, be it in meetings with Veterinary Services and other government officials, with scientists from other institutions, nationally and abroad, or with the wider public, including the media. As a simple prerequisite, senior managers and, as a minimum, the laboratory director, should be adequately trained to interact with the media. This becomes a major priority during a disease emergency, when having the right tools and messages to deliver effective communications to laboratory stakeholders becomes essential.

The key outputs from a veterinary laboratory are the scientific results and interpretation stemming from its analytical and investigational activities. These must be communicated to the customers or end-users in a clear and meaningful manner. Laboratory reports should include, where appropriate, indications of the level of uncertainty in the results, whether further results are still pending, and how to raise queries or clarifications or request further work.

It is good practice, and in some countries a legal requirement, for the management team to make publicly available as much information as possible, provided that it does not compromise the obligation for protection of personal data or customer confidentiality. A public information policy should be in place to provide a mechanism for individuals and outside bodies to ask about specific activities in the laboratory. The management team should also ensure that procedures are in place to ensure compliance with obligatory reporting and notification requirements.

Scientific staff should be encouraged and supported to attend conferences and present papers, while the production of a steady stream of good-quality written papers in refereed journals is vital to the success of a laboratory institution. Importantly, this does not apply only to the research scientists; those working in diagnostic and surveillance work can also play an important role in the appropriate contexts. Communications support staff should also be involved in ensuring that the laboratory’s customers are kept informed about the work of the laboratory, its successes and any constraints on future work. Most larger laboratories will have their own website, which provides an excellent means of communicating with both customers and the wider public on the activities and future plans of the laboratory. Online social media may have an increasing role in future as part of the overall communications package.

Conclusions

Good governance and management of a veterinary diagnostic laboratory are essential for the safe and effective delivery of a diagnostic service. Many aspects of the delivery of this service are now highly regulated, and laboratory managers must be familiar with these regulations and have compliance processes in place. Key elements of staff safety, biocontainment, biosecurity, quality assurance, animal welfare and environmental management are vital components of operating such facilities. The governance and management of these aspects are as important as the delivery of the actual diagnostic service. A key component in providing customer assurance is accreditation to quality standards such as ISO 17025 or the OIE quality standard. Accreditation is an important achievement of which laboratory staff can be proud, and implies that underlying compliance issues have been addressed.

Fundamental to the effective delivery of diagnostic services is the operation and maintenance of the facility and the scientific equipment. Allocation of adequate ongoing resources to this area is vital, yet is highlighted as an area of common neglect.

A successful veterinary diagnostic laboratory will have a highly trained, motivated workforce, with due respect given to all individuals, including both the frontline
scientific staff and the important support teams providing vital services in areas such as finance, HR, safety, quality, procurement, engineering, IT and communications.

The achievement of all the above, and delivery of a respected and reliable service, requires a management system with checks and balances. This will include mechanisms to ensure political accountability, transparency, responsiveness, and coherent planning to ensure sustainability. A structure that includes an oversight process through the use of a laboratory governing board is strongly advocated to assist both financial management and strategic approaches to the delivery of all aspects of the laboratory's activities.

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Gouvernance et gestion des laboratoires vétérinaires

S. Edwards & M.H. Jeggo

Résumé

Les auteurs décrivent les composantes de la gouvernance et de la gestion des laboratoires vétérinaires publics qui leur paraissent essentielles pour garantir l’efficacité de la prestation des services de diagnostic. Bien que largement applicable à tous les services de diagnostic vétérinaire, le propos est principalement axé sur les laboratoires de diagnostic vétérinaire relevant du secteur public dans les pays en développement, et met l’accent sur les composantes cruciales qui doivent être impérativement mises en place. La nécessité de fédérer le sentiment d’appropriation, la gouvernance ainsi que les ressources est mise en avant, suivie d’un inventaire détaillé des différents éléments qui composent la gestion et la prestation des services de diagnostic, ainsi que d’une description des principaux services d’appui permettant d’assurer une prestation de qualité. En décrivant les exigences relatives à l’assurance qualité et à la conformité, les auteurs soulignent la nécessité de comprendre et de respecter l’environnement normatif dans lequel opèrent désormais les laboratoires de diagnostic. Les résultats émanant des laboratoires vétérinaires doivent reposer sur des procédures scientifiques, mais il faut également prévoir des mécanismes visant à prévenir la corruption et à contrecarrer toute influence politique injustifiée.

Mots-clés
Buen gobierno y gestión de laboratorios veterinarios
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Resumen
Los autores exponen los aspectos del buen gobierno y la gestión de un laboratorio veterinario que se consideran esenciales para prestar eficazmente servicios de diagnóstico. Aunque su reflexión se aplica en general a todos los servicios de diagnóstico veterinario, los autores se concentran especialmente en los laboratorios de países en desarrollo que cuentan con apoyo del sector público, destacando los componentes indispensables que como mínimo convendría instituir. Tras recalcar la necesidad de instaurar un marco general de propiedad, buen gobierno y administración de recursos, dan cuenta detallada de los aspectos relativos a la gestión y prestación de servicios de diagnóstico, ligándolos a una descripción de los servicios básicos de apoyo que son primordiales para secundar la prestación de servicios. Describen en este sentido aspectos ligados a la garantía de calidad y la observancia de las normas, insistiendo en la necesidad de entender y respetar el régimen reglamentario en el que operan ahora los laboratorios de diagnóstico. Los resultados de un laboratorio veterinario deben tener sólidos fundamentos científicos, y han de existir mecanismos para prevenir prácticas corruptas y el ejercicio indebido de influencias políticas.

Palabras clave

References