

Chapter 7

Performance Measurement

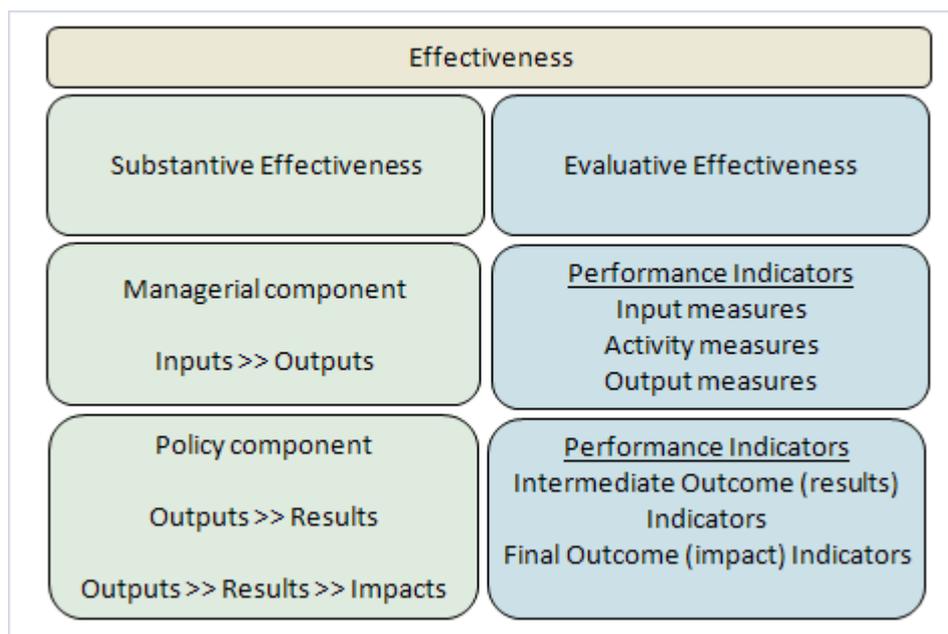
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Specify potential future performance indicators that might be used to better monitor the performance of the TB Eradication programme.

7.1 Introduction

The focus of this chapter will be on *evaluative effectiveness*, which is the ability to measure and improve on the Programme's substantive effectiveness [Figure 7.1]. The weaker this capacity within a programme, the weaker will be the ability to learn and hence to improve substantive effectiveness.

Figure 7.1 Components of effectiveness



Source: Glynn et al. (adapted)

Performance indicators represent one means by which the evaluative effectiveness of a programme may be enhanced (Glynn et al.). Four different levels of performance indicator can be identified, each of which links in turn to the four principal components of the Logic Model.

- *Input indicators* measure the resources consumed for a given activity;
- *Activity indicators* measure the things done by people in the course of delivering activities or programmes;
- *Output indicators* measure the products or services directly produced by an organisation; and

- *Outcome indicators* measure the direct or short-term effects (*intermediate outcome indicators*) or the longer-term objectives of the programme (*final outcome indicators*) (Boyle, 2005).

The first three categories of indicators provide a fair reflection of individual performance and hence may be used to hold staff to account. Intermediate outcome indicators are beyond the direct responsibility of individuals, but provide a valid reflection of the programme's performance, and final outcome indicators are relevant to the programme, but are affected by so many factors extraneous to it that changes cannot be attributed directly to the programme. Given the difficulty in attributing change in final outcome indicators to the policy or programme under scrutiny, intermediate outcome objectives and indicators are especially important for business planning purposes (ibid.).

The following sections will describe the indicators presently used to monitor the performance of the BTEP before going on to make a case for the incorporation into the monitoring framework of a limited number of additional final outcome (impact) and intermediate outcome (result) indicators. Analysis presented in previous chapters has drawn attention to the degree to which sustained investment in information technology and in research and development has created within the Programme a data-rich environment and a robust analytical capability. As a consequence, a wide variety of measures capable of monitoring the efficiency and effectiveness of the Programme are already in use, albeit that many of these are not formally denominated performance indicators. Together with these existing indicators, the new indicators proposed below form part of a suite of indicators from which management can draw as appropriate in order to gain an insight into various aspects of the Programme's operation. Because good indicators will be readily collectable, such new measures as are proposed should be either already available, or be capable of collation without any great additional effort.

7.2 Result and impact indicators

7.2.1 Existing indicators

The result and impact indicators currently used by the Department of Agriculture, Fisheries and Food in the management of the BTEP are as follows

Departmental High-Level Performance Indicators

Goal 1

- Value/volume of agri-food exports.

Goal 2

- Status of food safety, animal health and welfare, feed safety as indicated by verification reports of external agencies e.g. FSAI, FVO.
- Enhanced animal health as evidenced by changes in disease incidence.

Divisional Key Performance Indicators

- The incidence of TB and brucellosis in the current year relative to the previous year.

7.2.2 Proposed indicators

The existing high-level indicators provide some measure of the Programme's impact in maintaining trade and in guaranteeing human and animal health. A measure of the Programme's impact in reducing TB-related animal productivity losses could be provided by adopting the following additional indicator:

- Number of part / whole carcase condemnations for TB in reactor and attested cattle.

7.3 Compensation Indicators

7.3.1 Introduction

By facilitating the prompt removal of reactor animals from infected herds, the direct (OFMVS) and indirect (supplementary) compensation mechanisms together contribute to two of the Programme's intermediate outcomes – the resolution and the containment of infection. The Department is committed to replacing the market value of assets removed following a positive response to the tuberculin test or IFN- γ assay and to do so in a cost-effective and timely manner.

7.3.2 Existing indicators

The existing indicators used to monitor the performance of compensation measures include:

- Aggregate direct compensation per reactor;
- Salvage value as a percentage of market valuation;
- Percentage of OFMVS payments received by herdowners within 3 weeks of provision to the Department of all relevant documentation;
- Percentage of compensation payments subject to appeal and arbitration;
- Value of bovine disease levies as a percentage of total compensation.

7.3.3 Proposed indicators

Consideration should be given to supplementing these existing performance indicators with the following intermediate outcome indicator:

- Number of cases in which compensation is refused or reduced for reasons of non-compliance.

This proposed measure provides an indication of the extent to which administrative resources are tied up in the enforcement of the rules and regulations governing the various compensation schemes. The effectiveness of the various compensation schemes in offsetting actual losses incurred is a separate matter, and one which it is more appropriately monitored by means of periodic evaluation, such as that carried out for the present review [6.2.2], rather than by the adoption of performance indicators.

7.4 Field surveillance and control indicators

There has traditionally been a strong focus within the Programme on the collation and analysis of disease indicators, particularly since the creation, in 1988, of the TB

Investigation Unit [4.5.1]. Over time, the experience has been that the routine monitoring of disease trends is best performed using a limited suite of performance indicators, rather than a single indicator. This is because no single indicator is capable of providing the depth of information required to capture all the relevant aspects of the disease simultaneously. For this reason, the disease indicators currently in use, which provide management with consistent and widely understood measures of disease levels, should continue to be used to collect information on the Programme's performance in controlling bovine tuberculosis.

7.4.1 Existing indicators

The following efficiency and intermediate outcome (results) indicators are already in use:

- Percentage of herd tests completed within the year;
- Number of reactors;
- Reactor animals per thousand animal tests (APT);
- Herd disease incidence;
- Disease-free herds as a percentage of all herds;
- Animal disease incidence;
- Reactor animals per thousand population (RPT);
- Duration of restriction; *
- Average number of reactors per restriction; *
- Singleton breakdowns as a percentage of all breakdowns;

- Number of de-restriction events during the three years immediately preceding the period of interest. *

(* infrequently used)

7.4.2 Proposed indicators

Efficiency indicators

Expenditure on tuberculin testing, comprising both the fees paid to PVPs and the cost of tuberculin PPD, is a significant component of the BTEP, accounting for ca. 30% of gross programme expenditure. The overall efficiency with which these resources are used is primarily determined by issues of economy, or the unit cost of inputs. The fees paid to PVPs are agreed between the Department and Veterinary Ireland and these rates determine the unit cost of this resource for the period of validity of the agreement [5.7]. The efficiency of use of this resource is therefore largely pre-determined on the basis of the contract price agreed between the Department and PVPs. Wastage does not occur as PVPs are only paid in respect of tests completed, and the required levels of quality and timeliness are maintained by the quality control procedures previously described [5.7.2].

In the case of tuberculin PPD, the price is set following a process of competitive tendering involving those laboratories that have the capacity to supply tuberculin to the required standard [5.7.3]. The cost of the resource is therefore largely determined on the basis of the agreed contract price, and the product supplied is subject to quality control measures [5.7.4]. However, in contrast to PVP fees, wastage can occur in relation to the use of tuberculin and this has the effect of increasing the unit cost of the resource. Although the Department has taken steps to minimise wastage [5.7.3], the adoption of the following proposed indicator would provide a means of monitoring the efficiency with which tuberculin is used:

- Average expenditure on tuberculin per animal test.

The proposed indicator is of value both for monitoring the efficiency with which tuberculin is used at the aggregate, national level, as well as for monitoring variations in efficiency in the use of this resource between individual veterinary practices. By establishing a standard minimum rate of usage for tuberculin and by benchmarking practices against this standard it should be possible to reduce wastage and hence

improve efficiency at the national level. The standard rate of usage could be set initially at 15 animal tests per vial (vials contain sufficient for 20 animal tests) and allocations of tuberculin to practices could be calculated at the beginning of the annual testing cycle by applying this rate to the number of animal tests performed by the practice in the preceding year. This process could be carried out in conjunction with the annual practice inspections that form part of the quality control framework for tuberculin testing.

Intermediate outcome (results indicators)

It is not proposed to add any new performance indicators to the extensive range of performance indicators already available and described above. The Department has the capacity – both internally and in conjunction with CVERA – to develop further indicators to assist the management of specific aspects of the field testing programme as and when the need arises. Routinely, the intermediate outcomes of the eradication programme are communicated using just three indicators – the absolute number of reactors, reactors per thousand animal tests and herd incidence – which are generally reported on an annual basis. The only proposed change to the existing practice is that the three key indicators just described should be prepared on a multi-annual as well as an annual basis, using a moving average to ‘smooth’ variations in data. The use of ‘smoothed’ multi-annual data provides a better basis on which to measure programme performance than does inter-annual, point-in-time analysis, which takes insufficient account of the underlying cyclical nature of bovine tuberculosis in cattle. This has previously been discussed in Chapter 2 [2.4.1], where a recommendation for a change in the manner in which the key disease indicators are presented has been brought forward [2.7].

7.5 Wildlife control indicators

The Department’s present wildlife control programme, which has been in place since January 2004, is an essential component of its interim strategy [4.4]. While the ultimate goal is to break the badger-cattle infection cycle through the development and deployment of a badger vaccine [4.5.2], the interim wildlife control strategy is essential to allow the business of farming to continue while preserving a healthy badger population nationally. The Wildlife Unit, which was created on foot of the Social

Partnership Agreement of 2000, has overseen considerable expansion in badger control activity since its creation, and expenditure on this programme measure has doubled in the period 2000-2006. This relatively rapid expansion, both in terms of budget and output, and the key contribution made by the Wildlife Unit to the overall strategy of the BTEP require that its performance be capable of monitoring in a rigorous, consistent and transparent manner. For this reason, it is suggested that existing performance indicators be supplemented in the manner indicated below.

7.5.1 Proposed indicators

Efficiency indicators

The efficiency with which the Wildlife Unit operates has previously been examined in Chapter 5 [5.8], where it was stated that expenditure on the Unit can be related to the land area under capture to provide a proxy for the Unit's efficiency. However, as discussed, this type of data is currently available as an aggregate figure of the cumulative area of land treated since January 2003 and hence cannot be meaningfully related to annual expenditure on this programme measure. By presenting the data as land area under treatment in a given annual period, it would be possible to provide a measure of the Unit's efficiency.

- Wildlife Unit expenditure per hectare under active treatment in current year.

Effectiveness indicators

The effectiveness of the Department's interim wildlife strategy was discussed in Chapter 6, where it was suggested that the interventions of the Wildlife Unit have made a positive contribution to the reduction in disease levels nationally in recent years [6.4.5]. To attempt to measure the magnitude of this effect by means of a single performance indicator would, however, be inappropriate. It would be difficult, if not impossible, to disentangle the effects of the Wildlife Unit's activities from those attributable to other, concurrent programme measures. Problems also arise in attempting to relate the effects of the Unit's interventions, which are likely to be manifested in the vicinity of individual farms, to changes in bovine disease levels, which are conventionally reported on the basis of non-coterminous geographical areas such as the County or District Electoral Division.

The preferred approach is to continue to undertake research, such as that described in Chapter 6 [6.4.6], aimed at evaluating the effects of the Wildlife Unit's activities on bovine disease and developing improved methodologies for the measurement of such effects.

7.6 Research indicators

7.6.1 Proposed indicators

Efficiency indicators

As discussed in Chapter 5 [5.9], the analysis of the efficiency of expenditure on research is complex because of the difficulty of taking account of the quality of research and the strength of its interlinkage with policy-making, both of which are difficult to measure. However, performance indicators may have a role in providing a measure of the amount and quality of research carried out under the aegis of the BTEP [Appendix J] and it may therefore be appropriate to consider the adoption of an indicator of the following type:

- Number of TB-related research projects reported in the CVERA biennial review and number of these subject to peer review.

In addition, performance indicators may be an appropriate means of tracking activity in relation to specific research projects, particularly when these are of relatively long duration and of strategic significance to the BTEP as a whole. The badger vaccine development programme, the components of which have previously been described [4.5.2], falls into this category of research, and it may therefore be beneficial to report progress in relation to this project in the following manner:

- Expected dates of completion of the constituent components of the badger vaccine development programme.

Effectiveness indicators

As discussed in Chapter 6 [6.5.2], research has contributed positively to the operation of the BTEP, providing the evidence base for the development of new policy options or for the refinement of existing policies. However, because the influence of research on policy

may be time-lagged and diffuse, and because the outcome of much scientific research consists of the falsification of hypotheses ('proving negatives'), the use of performance indicators to measure the effectiveness of investment in research is not generally appropriate.

7.7 Reactor collection indicators

7.7.1 Proposed indicators

Efficiency indicators

The impact of the proposal, which will be brought forward in Chapter 8 [8.4], to reduce the staff overhead associated with the operation of the reactor collection service, should be monitored by adopting the following performance indicators:

- Number and percentage of reactor collection episodes in which Department officers (TAOs) are present on farm.

7.8 Post-mortem surveillance indicators

7.8.1 Proposed disease and public health indicators

Effectiveness indicators

Discussion in Chapter 6 [6.7.1] revealed the existence of an apparent variation between meat factories as to the rate of detection of suspect lesions of tuberculosis and the subsequent confirmation of these in the laboratory (Frankena et al.). This may be attributable to variability in the application of veterinary *post-mortem* inspection procedures at slaughter premises. Monitoring the rate at which meat factories detect tuberculosis on *post-mortem* inspection is of obvious importance for the overall effectiveness of the BTEP. It is also of importance as a general quality control measure for the Veterinary Public Health Inspection System (VPHIS); as stated in Chapter 5, lesions similar to those resulting from bovine tuberculosis, but attributable to other causes, will continue to be detected even in the absence of bovine TB. In order to ensure that variability between meat factories, insofar as it does occur, is kept to a minimum, it is proposed to adopt the following intermediate outcome measures at the level of individual slaughter premises:

- Number of suspect TB lesions submitted as a percentage of attested cattle slaughtered.

The contribution made by *post-mortem* surveillance to the overall disease surveillance effort could be monitored by adopting the following indicator:

- Percentage of new TB episodes identified by *post-mortem* surveillance disclosing one or more standard reactors in the course of that episode.

7.9 Key Findings

- Existing indicators for the compensation elements of the programme could be augmented by the adoption of an indicator in relation to the level of compliance by herdowners with the terms and conditions of the various compensation schemes.
- The adoption of an indicator monitoring the efficiency of use of tuberculin provides a basis for further reducing wastage of this resource.
- Disease indicators prepared exclusively on an inter-annual, rather than multi-annual basis, may fail to take sufficient account of underlying disease trends.
- The efficiency of the Wildlife Unit can be measured by introducing a performance indicator relating expenditure to the land areas under active treatment. The effectiveness of the Unit, on the other hand, is not currently amenable to measurement by means of a single performance indicator and further research will be required to evaluate the effect of its activities on bovine disease levels.
- Progress towards the development of a badger vaccine, which is a key component of the overall research programme and of strategic significance to the BTEP as a whole, can be regularly reported by means of a performance indicator.
- Progress in reducing the administrative overhead associated with the collection of reactor animals can be monitored by introducing a performance indicator for this purpose.
- Variation in the rate of detection of suspect lesions at individual meat factories, and the contribution made by the detection of disease *post-mortem* to the overall disease eradication programme, respectively, can be monitored by the adoption of two new indicators.

7.10 Conclusions

- The Programme has a strong history of collating performance data, particularly in relation to disease control.
- While the wide range of indicators already in existence provides valuable information on programme performance, the adoption of a limited number of additional indicators would complement those already in place to provide a comprehensive and accurate account of Programme performance.

7.11 Recommendations

Recommendation 11

The Department should expand its existing range of Performance Indicators, by selectively adopting some of those additional indicators identified in this chapter. It should clearly identify those measures that are regarded as being the Key Performance Indicators for the Bovine TB Eradication Programme and these should be regularly published on the Department's website.