
PROGRAMME ON
**SUBSTANCE
ABUSE**

Costs and Effects of
Treatment for Psychoactive
Substance Use Disorders:

A framework for evaluation



WORLD HEALTH ORGANIZATION

ABSTRACT

The Programme on Substance Abuse (PSA), within the Division of Mental Health and Prevention of Substance Abuse (MSA), of the World Health Organization (WHO) held an Advisory Group Meeting in Toronto, Canada, at the Addiction Research Foundation, from 6-10 November 1995, to discuss a global project on the evaluation of effectiveness of treatments for psychoactive substance use problems. They discussed why and how a proper evaluation should be undertaken, with details of the many different types of evaluations including; evaluation assessment, needs assessment, process evaluation, costing frameworks, client satisfaction and outcome and economic evaluation. The group agreed upon a three year project aimed at developing, testing and disseminating international guidelines on the proper implementation of treatment evaluations. The advisory group also presented several recommendations aimed at improving, supporting and standardizing treatment evaluations. This would be achieved by having WHO support and encourage the use of evaluation instruments and documents by governments and relevant agencies, in both developed and developing countries.

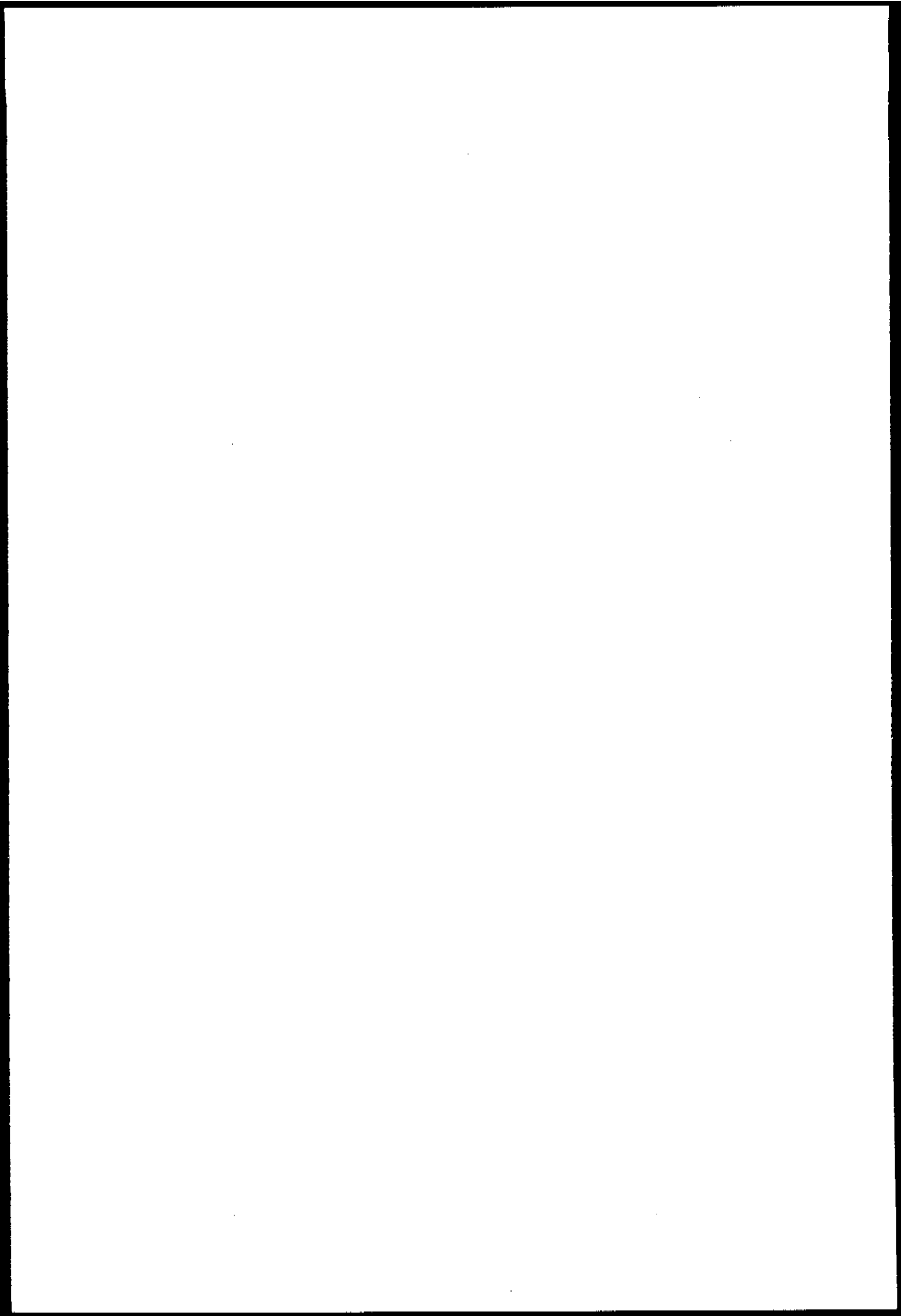
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EXECUTIVE SUMMARY

During the week of 6 to 10 November 1995, the Programme on Substance Abuse (PSA) of the World Health Organization (WHO) held an Advisory Group Meeting on "The Efficacy of Treatment Approaches of Substance Use Disorders", in Toronto, Canada at the Addiction Research Foundation (ARF). PSA brought together seven professionals in the field of substance use with the following purposes and objectives in mind;

- discuss the feasibility of a global project on the efficacy of treatment;
- discuss programme-specific and treatment-modality-specific evaluations of effectiveness of treatment for alcohol/tobacco, licit and illicit drug problems;
- discuss outcome measures for treatment evaluation, and methods for evaluating the effectiveness of treatment;
- discuss the different methods for health system research and the methods used to calculate the economic costs of alcohol and drug problems;
- discuss the methods for cost-benefit analysis of treatment and the methods for a proper evaluation of a project;
- agree upon a strategy and methodology for a cost-effective analysis of treatment and health system research.

The Advisory Group discussed and agreed on a three year project aimed at developing, testing, and disseminating international guidelines on how to conduct treatment evaluation. Phase II of the project consisted of the elaboration of workbooks and preparation of case studies. This phase was initiated in 1996. A second meeting of the Advisory Group will be convened before Phase II activities begin to review the workbooks and case studies, and to generate a training package for field testing in sites for all WHO regions.

Each site will be responsible for the identification of appropriate outcome measurements of health, social, occupational and psychological status related to the treatment of substance use disorders, both at the individual as well as the community level. Comparisons between these indicators across different sites will allow the analysis of cross-cultural comparability of evaluation approaches and generalization of results.

BACKGROUND

From the public health perspective, it is becoming increasingly evident that substance use plays a major role in morbidity and mortality on a worldwide scale. Despite efforts in supply control and primary prevention, there are large numbers of individuals who develop harmful or dependent patterns of use, thereby suffering from substance use disorders requiring treatment. Treatments are specific activities directed at those who have drug and alcohol problems in the hope of improving their health status and quality of life. **Health**, as defined by the World Health Organization, is **not only the absence of infirmity but a state of complete physical, mental and social well-being**. The term treatment should, therefore, be used to define the process that begins when psychoactive substance users come into contact with a health provider or service, and continues through a systematic succession of specific interventions until the highest attainable level of health and well-being is reached. It includes a comprehensive approach to detection, assistance, health care, and social integration of persons presenting problems due to psychoactive substance use.

A definition as such recognizes the entitlement of users to be treated with humanity and respect for the inherent dignity of the human person, and protects their right to live within their communities, and to enjoy health and well-being. It also protects the users rights to fully participate in educational, social, cultural, recreational, religious, economic, and political activities, including the provision of opportunities for gainful economic activities for users, and the integration of children affected by psychoactive substance use in ordinary schools.

Failure to provide adequate treatment is likely to prove costly to health services and the community; substance users would still seek help, and would inevitably turn to health services, not necessarily the right kind. Untreated individuals with psychoactive substance use problems are also likely to block up the courts and the penal system if they are routed in only that one direction (*WHO Technical Report Series No. 836, Geneva, 1993*).

WHO regards treatment and rehabilitation programmes as essential to public health. WHO has carried out many projects addressing standards of various treatment and care interventions, the range of approaches available worldwide, and identification of those which have been more carefully evaluated in studies of treatment efficacy. At present, however, the extent and quality of care available to psychoactive substance users are often inadequate, particularly because some service providers may regard drug users as unworthy of help.

The WHO-sponsored studies have indicated that treatment is multidimensional and may consist of numerous descriptors such as modality, setting, philosophy, stage, and target. Treatment includes five broad types of modalities: biophysical, pharmacological, psychological, sociocultural and mixed modalities that combine more than a single type. Treatment settings may include specialized substance abuse facilities, other health care facilities and other settings such as the criminal justice system, the workplace, religious, and educational facilities. Treatment philosophies include moral, spiritual/existential, biological, psychological, sociocultural and integrative models. Stages of treatment may include acute, active and maintenance. Substance abuse treatment targets may differ according to the substance used, the interactive unit with which the therapist deals, e.g. individual, couple, group, social network, and the characteristics of the individual or interactive unit (*Approaches to Treatment of Substance Abuse. WHO/PSA 93.10*).

There are a wide variety of treatment approaches used internationally, ranging from minimal interventions, brief interventions, medical detoxification, supportive counselling, family counselling, hypnosis, cognitive therapies, relaxation therapy, to psychotherapy and traditional healing practices for drug related problems. There are currently no internationally accepted standardized measurements of outcomes or ways of evaluating different approaches to allow cross cultural comparability or generalization of results to different settings. As a direct result, the needs of society are not being met, and the scarce resources that are available tend not to be used in the most efficient way possible. Most existing treatment approaches have not been evaluated and cost effectiveness analyses are still scarce. However, such analyses are very important due to reforms in the structure of health and social care that are occurring in many nations and scarcity of resources available for the treatment of substance use disorders (*National Drug and Alcohol Treatment Responses in 23 Countries. Results from a key informant survey. WHO/PSA 93.15*).

To date, most existing treatment approaches have not been evaluated, and non-scientific information and beliefs have often been used for decision making leading to a distortion in the development, support and use of national treatment services. As a result, the needs of populations are often not met and scarce resources are not being used in the most beneficial way.

Quality treatment must be available, accessible and affordable to those in need, taking into account the scarcity of resources and the existing services in a community. The development of rational policies related to service provision and funding for such services is best achieved by assessing needs and evaluating the costs and effects of various treatment approaches. A cost benefit analysis would generate the necessary information on how to allocate available resources in the most efficient way. Therefore, there is an urgent need to provide a practical model for evaluation and cost estimation which can be adapted to the various countries and cultural settings.

EVALUATION OF TREATMENT

While recognizing the great difficulty of conducting properly controlled and valid research in this area, the questions of cost and effectiveness are capable of being investigated. The task is deserving of priority in order to assure the effective use of available resources.

To rationalize treatment resource allocation based on evaluation, it is first necessary to educate policy and decision makers, as well as programme managers, of the need for evaluation. An appreciation of the benefit and need of proper evaluation must be developed before evaluation can be fully accepted and implemented on a regular basis.

More than one evaluation approach may be needed in the process of developing an evaluation model with a wide applicability to activities, services, programmes and treatment systems. However, developing and disseminating evaluation models and tools does not guarantee their application as there are considerable barriers to effective evaluation in most jurisdictions.

Approaches available to deal with substance use problems differ considerably among nations, as do the patterns of substance use that are of concern. A range of treatment approaches can be directed to the alleviation of alcohol and drug use problems. Services may also focus on a single substance or multiple substances, including those that are generally legally available, such as alcohol and tobacco, psychoactive medications that may be available either with or without prescriptions, volatile solvents, and illicit drugs. In spite of the diversity of drug use problems and treatment responses among and within nations, common techniques can still be applied to evaluation.

Evaluation of substance use related services can occur at multiple levels, including treatment activities/components, treatment services, treatment programmes/agencies or treatment systems (see figure). At the simplest level, evaluation may focus on individual treatment activities or components such as individual counselling or pharmacotherapy. At the service level, evaluations focus on individual or combined effects of interrelated treatment activities. At the programme or agency level, the evaluation focuses on single or multiple treatment services that are provided by a single administrative entity. At the systems level, the evaluation focuses on the full complement of programmes that are available in a defined community, in larger geographic regions or on a national level. This report and accompanying material will focus on each of these evaluation levels.

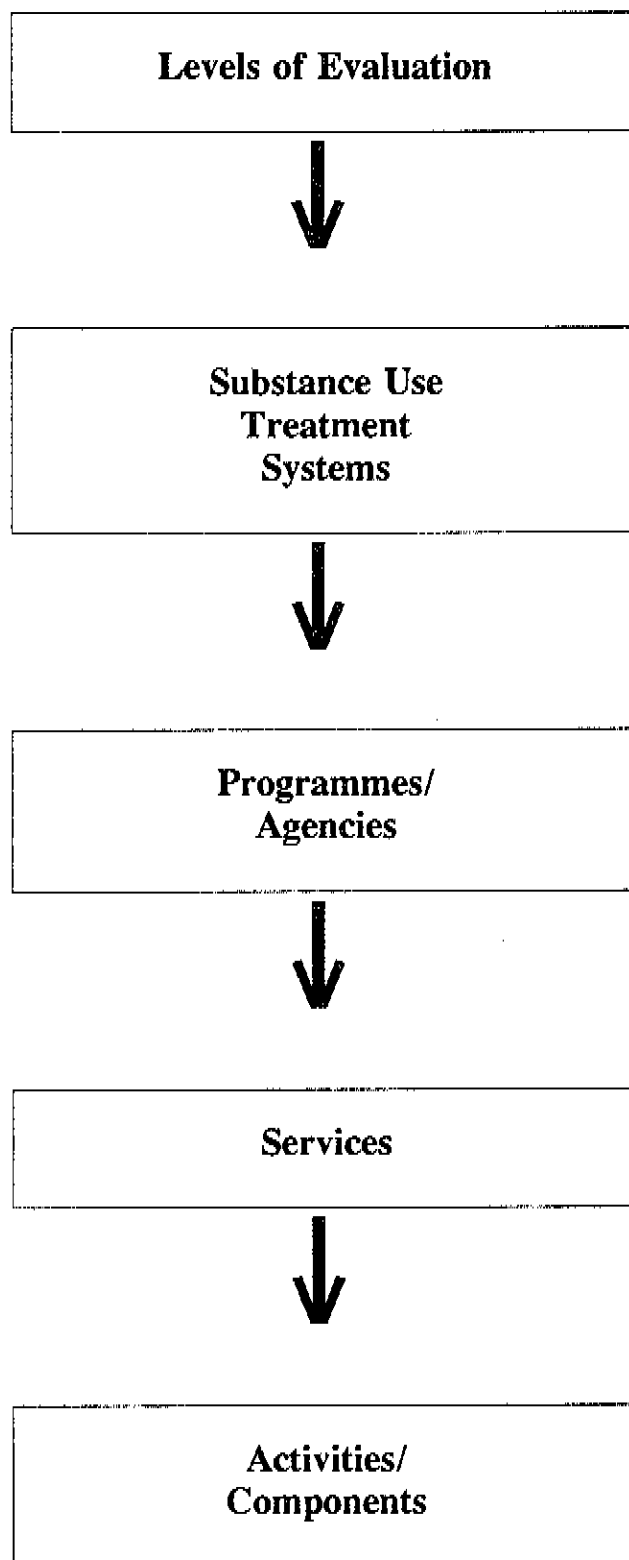
Evaluation must be understood in the broader context of a vision for psychoactive substance use services, their role in reducing tobacco, alcohol and other substance use problems in society and in the planning and delivery of these services. This broader context is reflected in the following Vision Statement and Goals:

Vision:

A society that strives to reduce substance use problems through the provision of accessible and affordable treatment services and strives unremittingly to improve their quality and effectiveness, within the constraints of available resources.

Goals:

Two broad goals have been developed to help guide the achievement of this vision. One goal concerns the overall allocation of resources for services for persons with substance use problems. The other goal concerns the distribution of these resources across the continuum of psychoactive substance use services.



Goal 1. The allocation of resources to plan, deliver and evaluate psychoactive substance use services should be appropriate to the size of the burden that substance use problems is placing on that society and the availability of resources to reduce this burden.

Goal 2. The planning and delivery of specific types of substance use services should be on the basis of a careful analysis of needs, competing demands, knowledge of the relative cost-effectiveness of alternative service delivery options and the explicit recognition of the scarcity of resources and the need for maximum efficiency in the use of these assets.

Objectives:

To achieve these two broad goals, the objectives of the project have been defined as:

- increase awareness of the role of evaluation in the planning and delivery of substance use services;
- increase knowledge of different types of evaluation, their purposes and limitations;
- increase confidence and skills in planning and undertaking evaluation activities, especially outcome and economic evaluations; and
- increase the utilization of evaluation results in order to improve decisions about programme enhancement and resource allocation.

Audience

This report is intended for people who make decisions about psychoactive substance use services. This may be someone who works within government and has the responsibility of allocating funds for these services, or someone more directly involved in how these funds are allocated to achieve the greatest benefit. We also anticipate that this report will be of value to programme administrators and staff who are making decisions about the types of services they are offering within the constraints of their budget and to evaluators who are charged with implementing programme assessment.

Why undertake evaluations?

On a general level, evaluation is concerned with obtaining feedback about the operation, effectiveness and efficiency of a treatment activity, service, programme or treatment system. This feedback can be put to several different uses, therefore it is essential that the reasons for a particular evaluation be made very explicit from the outset since this will influence all aspects of its planning, design and conduct.

Most of the reasons for undertaking an evaluation fall into two categories. Firstly, many evaluations are undertaken from an **accountability** perspective. Such studies often set out to judge whether the programme is delivering what it has promised, either in terms of services being provided or the outcomes being achieved. Accountability evaluations place considerable emphasis on assessing the efficacy or cost-effectiveness of the programme with rigorous scientific methodologies and are usually conducted by external evaluators in part to bring objectivity to the evaluation process.

Secondly, many evaluations are undertaken from a **quality improvement** perspective, with the explicit objective of enhancing the programme rather than judging its overall worth or accountability. Such studies may examine a wide range of issues related to the cost, delivery and effectiveness of the programme. Evaluations based on a quality improvement perspective are often undertaken with more limited evaluation resources than are scientific evaluations and are usually conducted by internal programme personnel. Increasingly, these internal evaluations are undertaken in a participatory fashion involving, for example, key stakeholders such as managers, staff, community partners, and the clients being served.

At all levels, evaluations can be undertaken for accountability and quality improvement purposes, whether it is focused at the activity, services, programme or system level. At the activity level, evaluation can provide information on the effectiveness of individual components of services, such as the effectiveness of medication in alcohol withdrawal, which includes whether the medication is delivered and taken at the right dosage and time, whether or not there is patient compliance, if reported side effects are related to acceptance of the medication, or whether the medication is related to an improvement in the withdrawal symptoms.

At the service level, evaluation is useful in gathering information on the impact of the overall intervention. In a service for acute alcohol withdrawal syndrome, for example, a number of combined activities are related to a specific outcome - i.e. the rate of successful treatment of the alcohol withdrawal state. The combined activities may include counselling and medication, and these activities may be influenced by such factors as physical facilities, staff qualifications, quality of care and external environment. The impact of each individual activity and related factors, however, cannot be precisely evaluated relative to each other.

The evaluation of treatment programmes involves assessing the impact of a number of services with the same common goal. For example, a treatment programme for alcohol related problems, including dependence, can include emergency rooms, for those in a state of severe intoxication, detoxification services, individual and family counselling services, continuing care services, Alcoholics Anonymous (AA) group activities, and other types as well. As in the services evaluation, it is difficult to disentangle the relative contributions of each of the services to the overall programme outcome.

Finally, the evaluation of a system can address the adequacy of the combination of programmes provided to address the needs of a population in a particular region or jurisdiction, in reducing the problems related to substance use disorders.

Types of Evaluation

1. Evaluation assessment

Since expectations of evaluation vary considerably, it is important that time be set aside to plan carefully. This pre-evaluation phase is referred to as **evaluation assessment**. During this phase, it is important to clarify the expectations of various stakeholders and their eventual role in the evaluation process. It is also essential at this stage that the various groups involved come to a common understanding of the structure, rationale, and objectives underlying the programme. This is typically achieved through the use of a programme model which shows the causal relationship of the programme activities to the programme objectives.

Objectives are either immediate process objectives concerning the target population and services to be delivered or the short and long-term outcome objectives that reflect the changes that are anticipated as a result of delivering these services. Since evaluations often ask about the extent to which the objectives have been met, considerable attention is paid to how clearly they are stated and how measurable they are.

These are some of the questions that might be asked when deciding to do evaluation assessment:

- Why people want to evaluate the programme?
- Where should evaluation resources be invested?
- What parts of the programme are the most important to get feedback on?
- From whose perspective will the evaluation be undertaken?

In addition to clarifying the theory that ties together the programme activities and objectives, the evaluation assessment is also undertaken to determine the philosophy and principles underlying the programme. Clarification of these principles makes the selection of appropriate outcome measures an easier task. For example, an evaluation of a programme based on a harm reduction philosophy could focus on broader outcomes than a programme based on an abstinence philosophy. Discussions of people's expectations from the evaluation, their value system, and a systematic review of the programme logic model, greatly facilitate the identification of the key questions and issues that should be addressed in the evaluation. These questions and issues are then prioritized and the details of the evaluation planned. The evaluation assessment culminates with a clear statement of the components of the programme to be evaluated, the questions to be addressed and the specific data collection strategies, measures and analyses to be employed. It also includes a work plan for the evaluation assessment.

2. Needs assessment

There is no universally agreed upon definition of need since one's definition depends on personal values as well as the acceptable standards in a society. For example, some countries whose policies have no tolerance for any drug use may prevent the implementation of methadone maintenance services. In countries where alcohol use is prohibited, controlled drinking is not an achievable goal. Despite national policies, the philosophies of some programmes may also determine the goals of treatment, regardless of the needs of the population to be treated.

Needs assessment usually involves two distinct phases: need identification and then need prioritization. In terms of need identification a variety of approaches and data collection strategies may be used. Some methods such as population surveys focus groups or community forums collect information directly from community members, while other approaches, such as key informant surveys or the delphi technique, rely on input from professionals who are thought to be particularly knowledgeable about the needs to be addressed. Other approaches use statistical indicators to assess the nature and extent of substance use problems in the community (e.g. alcohol or other drug related crime and violence, liver cirrhosis mortality rates, traffic accidents, family breakdown) as direct or indirect measures of community need. Each of these methods has its strengths and limitations and a convergent approach using a combination of methods is usually recommended.

For needs assessments undertaken at the community level, it is common practice to conceptualize an ideal continuum of services, and then use this ideal as a template with which to assess the availability and accessibility of local or regional services. Estimates may also be derived of the need for anticipated demand, and resource requirements of a treatment programme.

With respect to prioritizing needs that are identified, this is often difficult due to the political nature of the decision making process and the lack of clear protocols that reduce bias. If the task is to prioritize which geographic area has the highest need, it may be possible to develop composite indices of various need indicators and then use the ranking of this index to prioritize the various areas under consideration. If the task is to select the highest priority among a range of service options then a structured decision-making approach such as a Multi-Attribute Utility Analysis can be used to achieve group consensus and reduce bias.

These are some of the questions usually asked in a needs assessment:

- What type of treatment interventions should the programme provide?
- What is the prevalence and incidence of substance use disorders in the community?
- What are the main gaps in the community treatment system?
- What is the projected demand for treatment in the community or in the region as a whole?

3. Process evaluation

The basic function of process evaluation is to provide information about what the programme is doing and the extent to which the programme is being implemented as planned.

These are the types of questions that are addressed in a process evaluation:

- How many clients are being treated each year?
- Are the type of clients for which the programme was designed being attended?
- How long is the waiting list and how are people being managed while they wait?
- Is sufficient time being invested in the assessment process?
- How many counselling sessions are provided by each counsellor?

In this category of evaluation, the questions asked are not about the specific changes in the clients that result from the services being provided. Rather the questions typically concern programme coverage (i.e. is the programme reaching all those for whom it was intended?), programme process (i.e. has the programme been implemented as intended?), programme quality (i.e. has the programme been implemented according to reasonable standards?), and programme efficiency (i.e. are the volume of services provided relative to the resources utilized?).

The planning of a process evaluation is often steered by the precise specifications of what should be happening in the programme. The evaluation then seeks to determine the extent to which this is actually occurring.

The various strategies and sources of information that are drawn upon will depend on the circumstances of each programme being evaluated. Some strategies will tend to be more appropriate at the programme level than the at system level.

The following strategies may be used in process evaluation:

- A review of programme records (either written or computerized) that monitor the characteristics of people being treated and the services that they receive;
- A review of programme documents that may describe the nature and quality of programme implementation relative to agreed upon standards;
- Focus groups or interviews with programme participants or others such as managers, staff, community agency representatives, and families;
- Observation of the programme in action, for example, to rate the extent and quality of implementation;
- Surveys of the population for whom the programme was intended and of actual programme participants to see, for example, the proportion of people in need who are being served and to compare people receiving the programme with those who are not; and
- Follow-up surveys or interviews with people who have dropped out of the programme, so as to find out why and how the programme can be improved.

4. Costing frameworks

The broad aim of costing studies is to trace the resources used under different circumstances. There are three broad questions which could be addressed. These are:

- Estimates of the social cost to the community of substance misuse problems
- Cost minimization studies - comparisons of the costs of alternative treatments or treatment systems where the outcomes of the alternative programmes are assumed to be equivalent
- Treatment resource tracing - a detailed analysis of the different costs involved in the delivery of a service or service system with an emphasis on how costs may change in relation to activity levels within the programme.

Social costs

Social cost studies trace the impact of a particular substance within a location for an allotted period of time, usually a year. Information on the burden that a particular drug has on a society is used to help guide policy action. The disadvantage of these studies is that in themselves, they do not evaluate alternative policies which may reduce this burden.

Cost minimization studies

In this type of study, the resources that are needed to deliver different treatments or treatment systems are calculated and compared to each other. If outcomes are equivalent, it may suggest that the treatment or treatment system that required the least resources should be considered further. In most cost minimization studies, only the direct resources concerned in delivering care are compared. However, since persons with psychoactive substance use problems use more of other health and welfare services than similar persons without such problems, the expected resource use across the whole range of health and social welfare services should be considered. These studies may be used as a preliminary check on feasibility of treatment options prior to a more detailed outcome or economic evaluation. If there is firm evidence to suggest there would be no difference in outcomes across the many domains considered in the other evaluation methodologies, a cost minimization comparison could be seen as one type of economic evaluation. The principles of economic evaluations are considered in more detail below.

Treatment resource tracing

These studies are designed to examine the costs of the resources required to deliver specific units of service delivery (e.g. a counselling session, one inpatient day, or a one day supply of methadone within a maintenance programme). The information from such studies can be used by providers to set their charges and monitor whether resources are being used as planned. It is important to distinguish different types of costs:

Fixed Costs - Are difficult to change in the short-term even if the expected number of clients or interventions changes. For example, the capital costs of facility space is often fixed for the treatment agency.

Semi-Fixed costs - Many professional staff are employed with some sort of employment protection and it may not be possible for providers to vary the amount of staff resources available in a given period, when clients demand rise or fall. Thus, services may not be able to quickly reduce the number of therapists if client demands fall, nor is it always easy to recruit extra therapists in immediate response to an increase in treatment demand.

Variable Costs - These are costs which vary directly with the level of activity of the providing agency. This would include, for example, the costs of any prescribed medications within the treatment programme.

It is important to know which resources are within which category in order to determine the relationship between total costs and the level of activity. The average cost for each "unit" of activity can vary depending on the activity level and it is important to know the point, for example, where increasing the level of activity results in a large increase in costs because of the need for additional fixed or semi-fixed components.

When an agency was delivering a single very structured programme, a general resource tracing and a calculation of the variations in cost per client may be all that is required. Most providers offer a range of different interventions in different combinations for different types of clients. In such cases it is desirable to calculate unit costs for each type of treatment activity provided. This process requires an attribution of different costs to different activities. The allocation method used can vary by type of resource and the agency's own internal allocation mechanisms, and will vary depending on whether costs are fixed, semi-fixed or variable.

Results from a detailed costing exercise can be used to undertake a more detailed analysis of service delivery. For example, some of the factors which contribute to changes in total costs or cost per client can be examined using multi-variate techniques.

Resource tracing exercises are a component of many of the different evaluation methods outlined in this document. Different evaluation techniques may require different levels of detail from these types of studies.

5. Client satisfaction

The measurement of the satisfaction of clients with the treatment they receive can be a relatively simple yet worthwhile procedure. It can provide your agency with valuable feedback about the extent to which the activities involved in the services received have met with the clients' expectations in terms of adequacy, quality and appropriateness to fulfil his or her needs.

Client satisfaction questionnaires with demonstrated value in terms of reliability and validity do exist, but their cross cultural applicability is unknown. However, they may be used in some settings to assist agencies in assessing this aspect of the performance of services which are provided. Some of the questionnaires are quite brief and user-friendly, while others can be made to meet the needs of the service or programme provided. Multidimensional measures of client perception are the most helpful in fully reflecting the satisfaction with all aspects of the programme provided. These measures can include; type of treatment activities, the comprehensiveness of treatment, the continuity of treatment, staff performance, and the physical characteristics of the treatment environment.

There are also several limitations associated with this type of assessment. First, global measures of satisfaction may not allow for clients to respond in an insightful way to provide information about the sub-activities of a service which were perceived as unhelpful. Second, if clients are only asked about satisfaction toward the end of an intervention which has spread across a protracted time period, positive attitudes may be over-represented and negative attitudes minimized, since dissatisfied clients may have already left treatment prior to the evaluation. Similarly, asking only about treatment received will most likely exclude any opportunity for the clients to make statements about areas of problems for which intervention was not provided. It is for these reasons that it is most important to be quite scrupulous in the interpretation of the results, lest you presume satisfaction from some clients represents a view that all (or most) clients are likely to be satisfied with your service. Finally, client satisfaction is not a substitute for measuring the outcome, which is usually achieved by service activities which are discussed in the outcome section of this report.

6. Outcome evaluation

The two tasks of treatment outcome research are to measure change associated with treatment and then to infer causality (i.e. that the treatment actually caused the change, rather than other explanations). There are a number of evaluation designs which allow these two tasks to be achieved to varying degrees.

The most widely praised design in terms of measuring change and inferring causality is the randomised controlled clinical trial (RCT), wherein patients are randomly assigned to receive one of two or more treatment options (e.g. inpatient detoxification versus ambulatory detoxification; drug therapy or psychological therapy). Randomized controlled trials are considered the "gold standard" in the evaluation of treatment effects. This is because the use of that particular type of design allows for the inference of causality, and changes may be attributed to the treatment examined rather than other extraneous factors.

Another design model, which is still relatively strong in its ability to allow causal inference, is the "quasi-experimental" approach wherein patients are not randomly assigned to treatment. Rather, two groups of patients which have received two different treatments are compared after undergoing treatment (e.g. therapeutic community approach versus methadone maintenance therapy for opiate dependence). In this design, the ability to make strong inferences of causality is improved if there is a matching of patients in the two conditions or else pre-treatment differences are adjusted statistically. If such a matching or statistical adjustment is not undertaken, it is possible that any differences which occurred favouring one group over another were due to differences which were present prior to treatment (e.g. motivation or severity of disorder). Nonetheless, even a two group comparison without matching or adjustment is more useful in determining the relative effectiveness of treatment than a single group design.

Single group studies simply analyse the progress of a group of patients over time and do not allow for any inferences to be made about relative effectiveness. Patients are monitored in terms of changes from before to after treatment, and changes are attributed to treatment, but the strength of this inference is quite weak for several reasons. Specifically, patients may improve simply because of the passage of time and/or other factors, which are separate from the effects of the intervention used.

The weakest method of determining causation is the single group study where the patients are only assessed at the end of the treatment. Although the clinician may have faith that the patients have improved because of treatment, as there is no measure of pre-treatment problems, it is impossible to make statements about the extent of change and its relationship with provision to treatment.

Whichever evaluation design is selected, the issue remains as to which outcomes will be measured and how. Measures should be reliable and scientifically valid, and appropriate to the interventions objectives. This means that the measures must be sensitive to change in the behaviours of interest across time, and be able to assess the patient's well being accurately.

There are a number of domains which are typically included when examining outcome. They are: substance use frequency and pattern, psychological functioning, physical health (including HIV), social adjustment, family functioning, employment, crime, and others. It is not, however, always necessary to measure all these domains when evaluating a treatment approach.

7. Economic evaluation

Economic evaluations can be used to answer different questions. For example, funders, policy makers or indeed the general public may require an answer to the question "is treatment worthwhile and does it result in more benefits than costs?" Both providers and funders of services may be interested in the answer to such questions as "which of the treatment types or combination of services provides the best value or outcomes from the budget available?" A more generally relevant question for publicly funded health and welfare systems concerns the choice of allocating resources between different client groups or types of provider agencies. For example, the question may be how to distribute available resources between treatment programmes and other types of health care programmes.

Aim and purpose

There are limits to the amount of resources available to any community, which require choices to be made. Devoting resources to one activity usually deprives resources to another. This is the opportunity cost, which involves a choice in allocating resources. Economic evaluations help to aid policy makers in making these types of decisions. Economic evaluations involve identifying, measuring, valuing and then comparing the costs and outcomes of alternative interventions. The purpose is to identify which options give the best value for the resources expended.

Perspective

Economic evaluations may be undertaken from many different perspectives. The gold standard is to take a societal perspective, and consider all costs and outcomes to the clients, their families and all other members of society. However, some policy makers may take on a narrower outlook than that of a societal view. For example, the government may be concerned only with the overall impact of options on its budget. For this, it would be necessary to trace both the direct and indirect consequences of the options on a broad range of the activities funded. Alternatively the perspective may be a part of the health care system, and ergo the perspective would be to trace all the direct and indirect health resources. A narrow view means that not all of the costs and consequences are taken into account. For example, studies taken from the perspective of the funder neglect the costs and benefits borne by the individuals and families involved in the programme. The outcome of such an evaluation could be biased and result in a non-optimal decision for society as a whole.

Different methodologies

The different questions posed above require different economic evaluation techniques. The main differences involve which alternative actions are evaluated and how these outcomes are evaluated.

Is treatment worthwhile?

This question compares the costs and consequences of a particular treatment or system of treatments against the alternative of not doing anything. Because the comparison is broad, and the consequences varied, a common unit of measurement, usually monetary, for the outcomes is required. If the net benefits exceed the costs, the policy maker would determine that the programme would bring overall benefits to the society.

Should investment (or further investment) be made in treatment A or treatment B?

For simplicity, this question is expressed as a choice between two options, but more complex choices, having different patterns of service provisions, could also be addressed. It is also important to consider the incremental or marginal position - what are the costs and benefits associated with a small change in each alternative. These marginal cost and benefit comparisons can change between the alternatives depending on the overall level of activity.

Answers to these types of questions usually involve comparisons across services with similar outcomes, for example, a comparison in the observed change in the use of a substance by those enrolled in different treatment programmes. This would result in a comparison of the costs (net of other benefits) for a level of outcome, and the cost-effectiveness of different programmes could be compared on this basis. The major assumption is that the outcome measure chosen is an adequate representation of the programmes expected outcome.

Choice of substance use or other health or welfare interventions?

This is a very difficult question to answer since it generally involves programmes with very different outcomes and with different population groups. It is unlikely that there would be any common unit of outcome to be compared. Economists have therefore suggested the use of more general measures of the

well-being of individuals sometimes referred to as measures of "utility". Most existing measures used have been based on measuring quality of life changes that deal with health across different types of health care interventions. Few studies of substance use treatments have used such measures because of the difficulty in capturing total changes in well-being or quality of life. Further testing, and possibly the development of a wider utility measure, is required.

Different costs and consequences that need to be measured

Economic evaluations require the identification of all costs and benefits from the alternatives being considered.

Costs include:

- The **direct** costs to the providing agency (net of any direct fee paid by the client to the agency or funding body), and any costs directly borne by the individual client and his or her family.
- **Indirect** resource costs that are accrued as a consequence of different services - for example, additional demands on other health and social services, or lost time from work for clients while undergoing treatment.

Indirect costs such as loss of productivity, may vary in relevance in different countries.

The **benefits** involve positive changes in the quality of life for both the individual and family. There are also a number of effects on the rest of society. It is important to trace this third party, or external effects and benefits, because of the reduction in social problems and the excessive use of other scarce public services.

RECOMMENDATIONS

That governments and policy makers encourage and support standardized evaluation of treatment approaches to substance use disorders.

That governments utilize results from evaluation on cost-effectiveness when planning national treatment services, in order to allocate resources in a more efficient way.

That governments use equity concepts in providing accessibility to Substance Use Disorder Treatments.

That governments in all WHO Member States plan national treatment services taking into consideration local evaluations of effectiveness and economic efficiency of different treatment approaches.

That the Programme on Substance Abuse (PSA) coordinate the production of guidelines on treatment evaluation to be used by programme managers and administrators.

That PSA coordinate, through its collaborating centres, the development of case studies of different evaluation methodologies.

Taking on an advocacy role, that PSA increase the awareness of governments in the necessity to support, develop and implement evaluation of treatments for substance use disorders.

That programme managers and administrators plan, develop and implement the evaluation of treatment activities, programmes, services and systems, and use the information gathered to improve the cost-effectiveness of the provision of treatment.

That an international methodology for cost tracing be developed for use in cost/economic studies, specifically in the area of Substance Use Disorders.

That WHO develop a clearing-house of instruments and guiding documents in the area of evaluation methodology.

That WHO disseminate those instruments and documents so as to ensure access by governments and relevant agencies, especially in developing countries.

That WHO encourage the establishment in each Member State of a position of an evaluation facilitator, using existing resources in collaborating centres, nongovernmental organizations, research institutions and universities.

REFERENCES

World Health Organization. *Approaches to Treatment of Substance Abuse* (WHO/PSA/93.10) 1993.

World Health Organization. *National Drug and Alcohol Treatment Responses in 23 Countries. Results from a key informant survey* (WHO/PSA/93.15), 1993b.

World Health Organization. WHO Expert Committee on Drug Dependence, Twenty-eighth Report. *WHO Technical Report Series No. 836*, Geneva, 1993.

ACKNOWLEDGEMENTS

While this document owes its existence to all the key informants of the Advisory Committee, the Programme on Substance Abuse is no less thankful to Ms Eva Isabella Celnik who compiled and edited this consolidated report.

ANNEX 1

**WORKBOOKS AND CASE STUDIES ON THE EVALUATION OF
TREATMENTS FOR SUBSTANCE USE DISORDERS**

The workbooks and the case studies within them, are for use in countries by policy makers, programme managers, service providers and programme evaluators. These workbooks will explain research methods and provide real examples of the research methods from work already completed in evaluation of treatment programmes. A number of areas will be covered in the workbooks, including: needs assessment, process evaluation, cost accounting, client satisfaction, outcome evaluation, and economic evaluation.

The purpose of the case studies is to provide an example of an action-oriented study on treatment evaluation which provides the reader with an overview of the reasons for the project, the decision making process, the potential benefits, objectives, outcomes, methods, results, analysis issues, and a discussion of the findings. Each of the case studies will match examples given in the workbooks being developed separately, and illustrating the general method for each kind of study and a general analysis.

WORKBOOK OUTLINES AND AUTHORS

**WORKBOOK 1: *THE ROLE OF PROGRAMME EVALUATION IN THE PLANNING
AND DELIVERY OF SUBSTANCE USE TREATMENT SERVICES***

Author: Dr Brian Rush, Addiction Research Foundation, Canada

- the need for evaluation and different reasons for investing in it;
- the distinction between research for the development of knowledge and evaluation for service enhancement and accountability;
- the need to create a positive culture for evaluation that identifies potential, barriers to evaluation and how to overcome them;
- the need to plan evaluation activities at various levels - systems, agencies, services and treatment activities;
- the different types of evaluation and the need to tailor evaluation activities to the type of question or issue to be addressed;
- principles and guidance to the complementary set of workbooks;
- additional resources.

**WORKBOOK 2: *PLANNING FOR EVALUATION OF A
SUBSTANCE USE TREATMENT SERVICE***

Author: Dr Brian Rush, Addiction Research Foundation, Canada

- the need to carefully plan evaluation activities in order to make the most efficient use of available resources, and to maximize chances that the results will be used;
- the importance of involving key agents in the evaluation process in order to broaden the perspective of potential evaluation questions and to achieve buy-in for using the results;
- the use of programme logic models to achieve a common understanding of the structure, rationale and objectives of the treatment service or system;
- the use of programme logic models to help identify and achieve consensus on the critical questions and issues to be addressed in the evaluation;
- the advantages and disadvantages of quantitative versus qualitative approaches to collecting information that address the evaluation question and issues around it;

- the need for a written evaluation plan, including how the results will be used and an assessment of the quality of the evaluation process itself;
- additional resources.

WORKBOOK 3: *ASSESSING COMMUNITY NEEDS FOR SUBSTANCE USE TREATMENT SERVICES*

Author: Dr Brian Rush, Addiction Research Foundation, Canada

- different perspectives of "need" and the role of culture in defining needs in the substance use treatment area;
- questions that can be answered by needs assessment; questions that cannot be answered;
- distinctions between need identification and need prioritization;
- advantages and disadvantages of different need assessment strategies and data collection methods;
- guidelines for establishing an effective community process for planning and/or restructuring regional community treatment systems;
- strategies for prioritizing among a range of service options and system models;
- given resource limitations, what to do first and if more is available, what should be done next;
- additional resources;

WORKBOOK 4: *OUTCOME EVALUATION OF SUBSTANCE USE TREATMENT SERVICES*

Authors: Dr Alan Ogborne and Dr Brian Rush, Addiction Research Foundation, Canada

- relationship between outcome evaluation and treatment goals (abstinence, harm reduction goals, etc);
- relationship between outcome evaluation and programme logic models;
- concept model factors associated with client outcome and outcome evaluation designs and data collection procedures;
- outcome measures: advantages and disadvantages of each, and what they measure;
- how to choose outcome measures;
- the different types of measurement models;
- reliability and validity of outcome measures;
- quantitative and qualitative approaches to outcome assessment;

The target audience will be the community health worker and the programme managers.

WORKBOOK 5: *PROCESS EVALUATION OF SUBSTANCE USE TREATMENT SERVICES*

Authors: Dr Alan Ogborne and Dr Brian Rush, Addiction Research Foundation, Canada

- purpose of process evaluation and relationship to process objectives in the programme logic model;
- types of process evaluation questions and issues (coverage, process, programme quality); questions that can and cannot be answered in a process evaluation;
- strategies and sources of information for process evaluation;
- samples of data collection forms;
- role and structure of large scale client-based information systems;
- management and analysis of data;
- reporting of findings;
- illustrative examples at the service and system levels;
- additional resources;

**WORKBOOK 6: *ASSESSING CLIENT SATISFACTION WITH
SUBSTANCE USE TREATMENT SERVICES***

Authors: Dr Alan Ogborne and Dr Brian Rush, Addiction Research Foundation, Canada

- importance of client satisfaction assessment;
- questions that can and cannot be answered in a satisfaction survey;
- relationship to process and outcome evaluation including a brief review of the literature on the predictive relationship of client satisfaction measures and measures of outcome (primarily on mental health and substance use literature);
- measures of client satisfaction appropriate to the local cultural and social values;
- additional resources;

WORKBOOK 7: *ASSESSING THE COSTS OF SUBSTANCE USE TREATMENT SERVICES*

Author: Dr Christine Godfrey, Centre for Health Economics, University of York, UK

- purpose of cost analysis;
- questions that can and cannot be answered in a cost-analysis;
- social cost analysis;
- cost minimization analysis;
- treatment resource tracing analysis;
- types of costs; importance of stating costing perspective;
- illustrative examples at the service level;
- given resource limitations, what to do first and when more is available, what to go for;
- additional resources;

WORKBOOK 8: *ECONOMIC ANALYSIS OF SUBSTANCE USE TREATMENT SERVICES*

Author: Dr Christine Godfrey, Centre for Health Economics, University of York, UK

- purpose of economic analysis;
- questions that can and cannot be answered in an economic-analysis;
- illustrative examples at the service level;
- given resource limitations, what to do first, and when more is available, what to do next;
- additional resources.

ANNEX 2

INSTRUCTIONS FOR PREPARING CASE STUDIES

The workbooks will be supported by a series of case studies based on real examples of various types of evaluations, in both developed and developing countries, indicating what could be learned from them, and what the limits are of each evaluation approach. There will also be a commentary on each case study indicating what the advantages and disadvantages are of each type of evaluation carried out.

The manuscript will follow a general model of a scientific research report (abstract, introduction, methods, results, discussion, references), and will include additional sections on the historical context of the study, the level of difficulty of the study, the resources required, the reasons why it was undertaken and what changed after the study.

Sections within each case study

Historical context: This section will allow readers to determine what factors might lead to a specific research design being used. The complexity of the study should also be explained in relation to the local resources available (financial, technical, human, etc).

Introduction: This section will include a description of the question to be answered, and which problems suggested the need for an evaluation process. It will also include details on who was asking the questions, why they wanted this information, and what criteria were utilized to determine the specific methodological approach. Included also should be the specific objectives of the study, according to the needs of the programme or health care system (why the study was undertaken).

Main body of study: All of the following should be delineated; the methods used, how data was collected, the procedures followed, the instruments used to collect the data, how the database was created and the statistical procedures used in data analysis. Also described should be any qualitative methods used and why. Results will be described in full also, and if the results were used to alter policy, an explanation of how this was implemented was given. A summary will also be provided on how the knowledge obtained affected practices.

Conclusion: The results will be critically discussed, with the entertainment of rival hypotheses for the outcomes, and suggestions on further research will be given in order to help answer further questions.

ANNEX 3

PROVISIONAL LIST OF CASE STUDY AUTHORS

Planning and Evaluation of Treatment Services

- | | |
|------------------------------------------|-----------------------------------------------------------------------------|
| Dr Pilar Solanes Salse, Barcelona, Spain | Planning and Evaluation of Outpatient Service for Drug Dependence. |
| Dr Michael Gossop, Beckenham, UK | Planning the National Treatment Outcome Research Study in the UK. |
| Ms Cindy Smythe, Ontario, Canada | Planning the Evaluation of Home Detoxification Services in Timmins, Ontario |

Needs Assessment

- | | |
|----------------------------------------------------|----------------------------------------------------------------------------------------|
| Mrs Marcelle Christian, Johannesburg, South Africa | Needs Assessment in South Africa. |
| Dr Alojz Nociar, Bratislava, Slovakia | Case Study on Nationwide Information System within the Health Care Sector in Slovakia. |

Process Evaluation

- | | |
|--------------------------------------------|-------------------------------------------------------------------|
| Dr Ambros Uchtenhagen, Zurich, Switzerland | Case Study on the Medical Prescription of Narcotics. |
| Mr David Cooper, Suffolk, UK | Process Evaluation of Home Detoxification for Alcohol Dependence. |

Cost Analyses

- | | |
|-----------------------------------------------------------------------|-------------------------------------------------------|
| Dr Michel French and Dr Kerry Anne McGeary, Berkeley, California, USA | Estimating the Economic Cost of Drug Abuse Treatment. |
| Dr Teh-Wei Hu, Berkeley, California, USA | Cost-Effectiveness of Substance Misuse Interventions. |

Client Satisfaction

- | | |
|-------------------------------------------------|--------------------------------------------------------------|
| Dr Jeff Ward, Sydney, Australia | Client Satisfaction in Methadone Maintenance Treatment. |
| Dr Thomas Greenfield, Berkeley, California, USA | Client Satisfaction in Substance Abuse Treatment Programmes. |

Outcome Evaluation

- | | |
|------------------------------------------|----------------------------------------------------------------|
| Dr Maria L. Formigoni, Sao Paulo, Brazil | Outcome Evaluation of Cognitive Behavioural Therapy in Brazil. |
|------------------------------------------|----------------------------------------------------------------|

Dr Marc Auriacombe, Bordeaux, France

Outcome Evaluation of Buprenorphine Therapy for Opiate Addiction.

Economic Evaluation

Dr Michel French and Dr Kerry Anne McGeary,
Miami, Florida, USA

Economic Evaluation of Drug Abuse Treatment.

Ms Patricia Ward, Sydney, Australia

Cost Effectiveness of Public and Private Methadone Programmes in Australia.

Dr Ellen Williams, Conway, Massachussets, USA

Case Study on the CALDATA Study Results.

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