

The Inter-American Drug Abuse Control Commission's Program to Estimate the Social and Economic Costs of Drugs in the Americas (Cost Program)

A Summary of Results from the Pilot Study in Six Countries in Latin America and the Caribbean

Abstract

This paper will discuss the program, and results of the pilot study by the Inter-American Drug Abuse Control Commission (CICAD) to develop and apply a low cost methodology to permit developing countries to reasonably estimate the economic and social costs of the drug problem. The pilot study was carried out in six countries in Latin America and the Caribbean: Barbados, Chile, Costa Rica, El Salvador, Mexico and Uruguay. This is the only program in existence in Latin America or the Caribbean to support countries in the development of estimates of the costs associated with the drug problem.

The methodology was based on the International Guidelines to Estimate the Costs of Drugs (Single et al), and involves the calculation and extrapolation of data corresponding to sixteen indicators on economic and social impact, covering healthcare, criminal justice, labor and productivity, and other costs. Both direct and indirect costs were taken into account. Because the breadth and depth of data sets varied between countries, key data that were unavailable initially were obtained or approximated through small related studies. The program attempted wherever possible to remain in synch with the international guidelines. In each case the research team routinely adopted the most conservative estimate available.

*Cost studies were successfully carried out in all six pilot countries. Actual results varied depending on the depth and breadth of data sets in each country. In two cases, Barbados and Uruguay, studies were partial concentrating on one conceptual area or on direct costs alone. **Barbados:** Barbados estimated that the costs associated with drug demand reduction activities during 2000 totaled US\$2.1 million representing about 0.004% of GDP. **Chile:** the costs of drugs in Chile for 2003 were estimated at US\$149 million, 0.22% of GDP; **Costa Rica:** calculated that drug costs for 2003 were US\$84.81 million, about 0.50% of GDP; **El Salvador:** estimated that costs associated with the drug problem in 2004 totaled approximately US\$43 million, 0.27% of GDP; **Mexico:** Costs in Mexico, during 2003 totaled US\$617.52 million, about 0.1% of GDP for that year. The Direct costs to the government made up the greatest proportion of costs, which were weighed heavily toward supply control activities. **Uruguay:** Found that nearly US\$2.6 million dollars in direct government costs were dedicated to the fight against drugs, representing 0.02% of their GDP.*

The study concludes that countries Latin America and the Caribbean are capable of developing basic estimates on the direct costs of the drug problem, and in most cases are capable of estimating a limited number of indirect costs. However, results vary country by country depending primarily on the richness of the data sets. Social costs, measured in terms of lost productivity were more elusive. Despite differences in size, distribution of substances used, level of development and infrastructure, expenditures profiles are similar among the countries, as supply reduction dominates the direct government costs across the board. Countries with estimated lost productivity showed that a significant proportion of the impact of drug costs was in the area of productivity losses. Results indicate that this would be an even more significant source of costs in all countries if they refine their studies.

Background

Countries such as the Canada, the United States, New Zealand and others have carried out studies on the economic impact of the drug problem for years, and have been pivotal in establishing the standards for carrying out costing studies internationally. The Canadian Centre on Substance Abuse (CCSA), in collaboration with the World Health Organization, created a set of International Guidelines for carrying out Cost Studies¹. In

¹ International Guidelines for Estimating the Economic Cost of Substance Abuse; CCSA website: <http://www.ccsa.ca/plweb-cgi/fastweb.exe?getdoc+view1+General+494+0++international%20guidelines>

1997, with the support of the Government of Canada, CICAD explored the feasibility of carrying out a complete cost study in Chile applying the *International Guidelines*. At that time CICAD determined that the *International Guidelines* in their present state were too complex and required more information than countries in Latin America could produce.

In 2000 CICAD contracted a team of researchers through the University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School to develop a simpler methodology based on the *International Guidelines* that could be applied in any country in the hemisphere. Over the next four years the research team worked with CICAD to develop a methodology and pilot test it in six countries across Latin America and the Caribbean. Countries were selected based on a series of pre-established criteria: geographic balance (representation of each of the four regions of the hemisphere), country size, an expressed interest in the common goal of carrying out cost studies, understanding of the cost problem and broad political support for carrying out cost studies.

Methodology

In order to develop a methodology that can reasonably be applied in any country in the hemisphere, the CICAD research team identified a series of sixteen indicators in four conceptual areas - health costs, criminal costs, labor costs and other costs) to address principal cost information that should be available in any country in Latin America or the Caribbean, in addition to validation of data on the direct government expenditures.

These indicators were further divided into two levels of difficulty². The first level represents primarily information that in most should be obtainable from public registries and other public records including aggregate data from a variety of public sources. This was considered to be the easiest information to obtain.

Level 1 Indicators

1. Number of requests for treatment in public and private institutions
2. Number of deaths or severe injuries associated with consumption as a result of homicides, accidents, or suicides
3. Number of convictions and length of sentence for drug trafficking
4. Number of prisoners for committing offenses and crimes associated with consumption (as a cause or a consequence)
5. Consumption studies among the population in general, students, or workers
6. Number of hospital admissions for consumption and length of stay
7. Number of arrests for possession and consumption; time of duration and number of persons involved in the action
8. Number of persons in treatment, type of treatment and duration of treatment.

The second level represents indicators that are more complex, and hence more difficult to obtain.

² The first edition of the Research Manual for the CICAD Program to Measure the Human, Social, and Economic Cost of Drugs in the Americas originally divided the indicators into three levels of difficulty. In response to the success the pilot countries had in obtaining most of these data, the indicators were later reorganized into two levels of difficulty.

Level 2 Indicators

9. Destruction of physical assets
10. Follow-up of persons who have been in treatment (cost/effectiveness)
11. Methodology for calculating the loss of labor productivity
12. Economic costs of premature mortality
13. Economic costs of absenteeism
14. Social impact from the loss of goods (tangible and intangible)
15. Economic loss due to morbidity
16. Opportunity cost for consumption of psycho-active substances

For several of the indicators formulae were suggested to calculate costs. These were by no means considered the only way to calculate costs, but rather were meant to provide additional guidance to the pilot countries.

Number of convictions and length of sentence for drug trafficking

[(No. of prison days)³ x (average daily cost of maintaining a prisoner)]

Number of substance-use induced hospital admissions and length of stay

Formula: During the course of the year under study

[(Number of hospital admissions⁴) x (Length of hospital stay⁵) x (Daily cost of patient)]⁶

Number of persons undergoing treatment, type of treatment and duration of treatment

These data could have wide variations from country to country as treatment is approached differently from one country to the next. Ideally data should be disaggregated by type of treatment...

[(Number of people in treatment type “A”) x (Average cost of treatment)]

Premature deaths in terms of productivity

{(Number of cases) x [(Average Age of retirement in months) - (Average age of death in months)] x (Average monthly wage)}

Arrests for possession and use

This indicator has different meanings in different countries - in some, possession of any amount of illegal substance is a crime, while in others there is the “personal dose”; restrictions on consumption may also vary.

{[(Number of people arrested in the last year) x (Average length of detention) x (Daily cost of maintaining an arrested person)] + [Average number of officials involved in an arrest) x (cost of these officials)]}.

Number of persons imprisoned for crimes or offences connected with substance abuse

[(Number of prisoners) x (Average length of sentence) x (Daily cost of a prisoner)] + (Cost of lost wages while imprisoned)

Loss of wages due to absenteeism⁷

³ The number of prison days is the sum of the number of days spent by each prisoner convicted for drug trafficking

⁴ In the absence of admissions data a proxy may be “departures” or “releases” from the hospital

⁵ Usually counted as the number of inpatient days

⁶ For “length of hospital stay” and “daily cost of patient” specific data may not be available case by case. In these situations “average length of hospital stay” and “average daily cost of patient” are useful proxies.

Formula: (Number of days not worked due to consumption) x (Average monthly wage/20)⁸

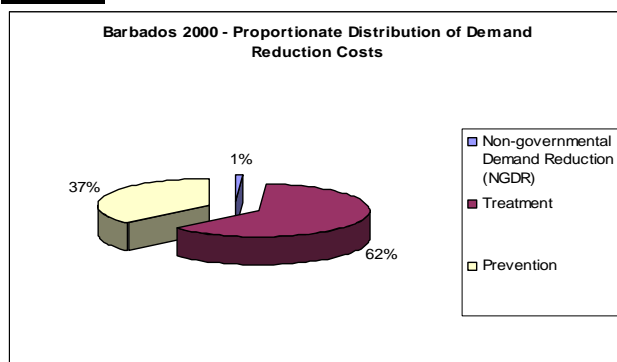
A panel of seven independent researchers performed a peer review of the methodology prior to its finalization. In addition, CICAD published a research manual detailing the methodology for the CICAD Cost Program⁹.

At the beginning of the program, we expected that all the countries should be able to collect broad data on direct costs in addition to fulfilling all the level 1 indicators, and expected few, if any of the countries to be able to fulfill any of the second level indicators. Most countries were able to address all the direct costs, in addition to some of the more complex data such as absenteeism costs, and premature mortality costs. However, in each of these cases, data gaps continue to exist and cost estimates are very conservative.

RESULTS

Barbados:

Chart 1



Barbados carried out a small but informative study focusing strictly on the costs associated with demand reduction. This proved to be a useful approach, particularly for data poor countries and countries that do not have the human resources to carry out a single large study all at once. According to Barbados, during the year 2000, the costs associated with drug demand reduction totaled US\$2.1 million, translating into a 0.004% impact on GDP. Barbados estimated that the largest portion of direct government costs for demand reduction activities was dedicated to drug treatment, 62% of direct costs in demand reduction. A great deal could still be done to refine Barbados' estimates, in

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There are a variety of reasons for absenteeism including illness and incarceration. The following are some variations on how to calculate costs: In each case the cost of lost wages is calculated using a base of the average wage (daily, weekly, or monthly) multiplied by the time lost: Lost wages due to incarceration for drug crimes: [(Length of sentence in months) x (Average monthly wage)]. Lost wages due to substance induced hospital admissions: (number of days hospitalized) x (average daily wage). Lost wages while in drug treatment: [(number of days undergoing drug treatment) x (average daily wage)]

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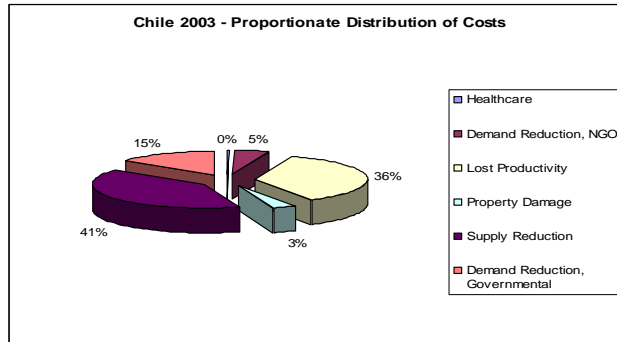
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A complete copy of the CICAD Cost Program Research Manual can be found on the CICAD website, www.cicad.oas.org

several areas, but this study represented a good start to addressing the economic impact in their country.

Chile:

Chart 2



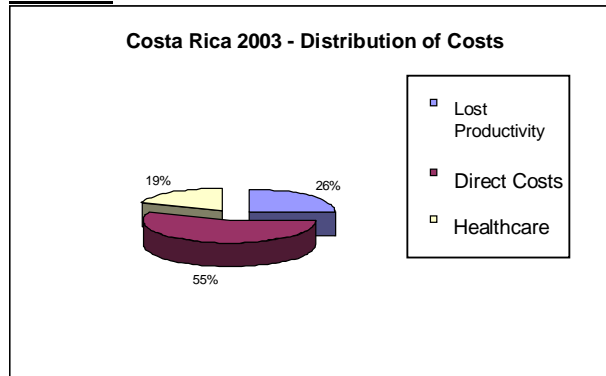
Chile carried out the most complete cost study among the pilot countries, utilizing data from a broad range of sources for a single year, 2003. Chile estimated that the direct costs to government were approximately US\$81.5 million, yet when costs associated with healthcare, non-governmental demand reduction activities, lost productivity and other costs are taken into account, this figure leaps to US\$149 million dollars, 0.22% of GDP. According to their economic analysis, 36%, or US\$53.4 million dollars are due to losses in productivity alone.

Although the figures for Chile are small in comparison to countries like the United States and Canada, it has some similarities. For example, the direct costs, which typically are the only known costs prior to carrying out a cost study, dwarf in comparison to the final figure, when other costs are taken into account. Secondly, the loss of productivity represents a significant share of total costs, similar to other countries like the US, Canada, Australia among others.

Although Chile performed the most complete study among the pilot countries, morbidity and mortality related to drug use were extremely underestimated. At the time of the study, Chile did not routinely collect data on the morbidity or mortality associated with drug use. Data were approximated based on emergency room surveys, which provided data on accidents and injuries due to drug use. This implies that Chile's costs would be much higher still if they were to refine their economic research further by carrying out a more in-depth analysis of the proportions of death, disease and crime attributable to drug use.

Costa Rica:

Chart 3



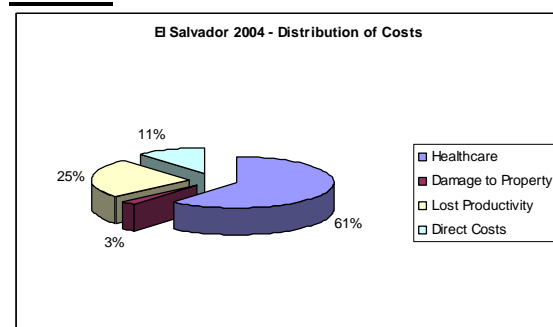
In Costa Rica, the total costs calculated for 2003 were US\$84.81 million, with a clear evolution between 2000 and 2003 demonstrating an increasing impact on the GDP from 0.43% to 0.50%.

Direct costs to the government showed the greatest economic impact. It is important to keep in mind, although it cannot be seen on Chart 3, that almost 99% of direct costs in Costa Rica during 2003 are accounted for by **supply reduction activities**. Treatment and prevention combined make up only a little more than 1% of Costa Rica's direct costs.

Similar to countries with high drug prevalence rates, lost productivity represents a significant proportion of costs, more than a quarter of total costs in Costa Rica.

El Salvador:

Chart 4



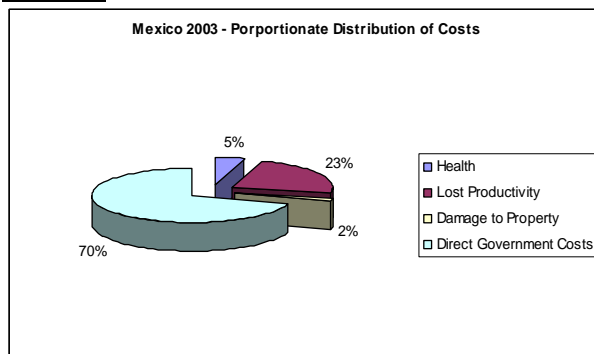
El Salvador estimates that the costs associated with the drug problem during 2004 totaled approximately US\$43 million dollars, representing an impact of about 0.27% of their GDP. Although the percentage is low in comparison with large countries, according to El Salvador's estimates, there was a steep rise in drug costs between 2001 and 2004, from US\$18.75 million to US\$43 million. El Salvador reports that this is due largely to an increase in treatment costs, which more than doubled during that period (US\$2.93 per capita in 2001 – US\$6.37 per capita in 2004).

One interesting aspect in which El Salvador stands out against other countries in the region is the large percentage of costs associated with healthcare. These costs increased sharply between 2001, when they represented the smallest proportion of total costs, and 2004 when they became the largest proportionate costs. According to El Salvador this shift reflects changes in drug policy during that period. Countries such as Canada, Australia and New Zealand invest heavily in healthcare as well. However, even in those countries, healthcare does not reach 50% as a proportion of total costs. The high proportion of healthcare costs in El Salvador can probably be explained by an increased availability of data in this particular area resulting from the policy changes between 2001 and 2004.

Direct costs, which made up only 11% of total cost, are heavily weighted towards supply control – as is the case in most of the other pilot countries. However, once additional costs related to supply and demand reduction outside of direct government costs are included, such as hospital fees and private treatment, and non-governmental prevention programs are taken into account, demand reduction costs actually exceed those of supply reduction. This result was surprising as it differs from the other countries in the region.

Mexico

Chart 5

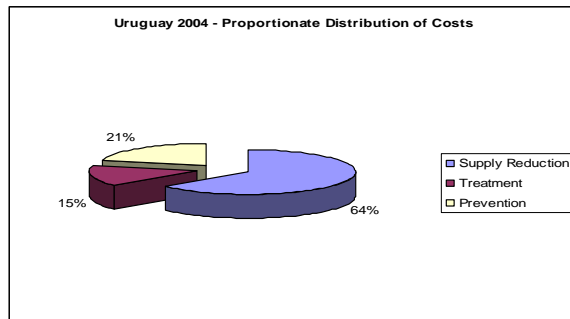


Costs in Mexico during 2003 totaled US\$617.52 million dollars, about 0.1% of GDP for that year. Direct costs to the government made up the greatest proportion of costs, which were weighed heavily toward supply control activities.

Mexico spent about US\$11.9 million in drug treatment and US\$14.6 in drug prevention, while spending over US\$400 million in drug control during 2003. As direct government costs gradually increased between 1998 and 2003, increasing by 73 percent during this period, losses to productivity increased almost 50 percent. This means that despite a significant increase in supply control costs, lost productivity continued to rise.

Uruguay

Chart 6



Uruguay's study focused entirely on the direct costs to the government. They found that nearly US\$2.6 million dollars in direct government expenses were dedicated to the fight against drugs, representing 0.02% of their GDP. This impact appears small, but the figures will certainly change once indirect and non-governmental costs are taken into account. As was the case in other countries in the hemisphere, supply reduction accounts for the majority of costs, outstripping all others multiple times.

Between 2002 and 2004, supply reduction costs remained relatively stable, while the direct government costs for treatment actually decreased. Uruguay suggested that during this time period drug treatment was not considered a political priority, or policy makers did not believe that drug treatment has an effective impact. Similar to other countries in the study, the vast majority of direct costs are dedicated to supply control activities (Chart 6).

Discussion

During the course of the study, the indicator *Follow up on persons in treatment* was dropped as it was agreed that the indicator focuses on avoidable costs as opposed to real costs, as well as the indicator *Social impact from loss of goods*, which was considered to be too complex for this study. None of the participating countries were able to approximate the opportunity costs (indicator 16).

All of the countries involved in the CICAD Cost Program Pilot Study reported benefits above and beyond the data gathered. In nearly every case the pilot countries were able to provide specific examples of how research capacity was strengthened as a result of the program.

Drug cost studies, by their very nature, require a multidisciplinary approach, forcing researchers to look at information beyond their usual field of reference. For example, in order to develop estimates of healthcare costs per capita related to substance abuse, the researchers must gather a great deal of socio-demographic data in addition to data regarding hospital expenditures and healthcare costs. While in order to estimate costs to the judicial and prison system, drug epidemiologists must work closely with personnel from other ministries and secretariats in order to gain the appropriate information.

This process forced the creation of strategic alliances and new collaborative relationships in many countries across areas of government and the private sector that normally would not have worked together. This practice opens the door to future collaboration, and makes other studies much easier as time goes on. Mexico and Uruguay in particular described how a great deal of time and effort went into building alliances and partnerships, and developing collaborative relationships with other governmental and non governmental entities.

Because a great deal of aggregate data from multiple sources needed to be acquired, countries discovered data gaps that were previously unknown. Beyond this, countries also discovered the importance of data that was previously considered irrelevant. Because countries needed to confirm the validity of this data, inconsistencies were brought to light.

Such benefits described by the countries eventually lead to the strengthening of research and data collection protocols across a variety of fronts. Chile describes the example of recognizing the need to improve the data collection in their prison system. El Salvador found inconsistencies in several data points from one year to the next, and carried out additional work to either correct mistakes or identify a reasonable explanation for the inconsistency. New administrative procedures needed to be put into place in many countries in order to facilitate the process.

Through the course of the study, it became clear to many of the participating countries how important it is to have functioning systems that provide accurate and reliable data. Although this point may be obvious to countries with long histories of accurate data collection it is not a given in many developing countries. Cultural changes are often needed to convince countries, particularly data-poor countries of the importance of collecting reliable and consistent data, particularly when the benefits of that data collection may not be seen for years.

Obstacles

More than one government changed during the course of the study, affecting the ability of some countries to carry out a more complete cost analysis. This is an example of the type of challenge often faced in developing countries – changes in government, and even changes in technical personnel can dramatically affect the continuity of programs, thus highlighting, the importance of fully integrated systems that allow continuity of programs.

What this means in terms of international drug policy

The diversity of the experiences of the countries involved in the cost program is a significant point when considering how to orient international drug policy. The experiences of the countries in the pilot cost study were as diverse as the countries are themselves in terms of size, demographics, population, economics, and drug use patterns.

However, there are a number of common elements among the Latin American countries that make them stand out against other developed countries that have carried out drug cost studies in the past. While most of the developed countries with a longer history of cost research find that the largest costs are associated with lost productivity,

most of our Latin American participants found that the largest costs were associated with *direct government costs, particularly as related to supply control activities*. There is an important point to be made here because loss of productivity is often used as an indicator for *social costs* because the economic losses are calculated based on information regarding inability to work because people either died, were disabled or otherwise removed from the working population.

It is no surprise that that Latin American government investments and expenditures related to supply control activities dwarf those of all other drug related activities, at least in terms of GDP. But what is most interesting is not where the governmental expenditures lie, but rather the data gap that has been clearly exposed. One might attempt to argue that supply control activities are so successful that countries with this political focus do not experience the same level of social costs as countries with a softer focus on drugs. However, we need only look at the data available from each country to see that this is certainly not the case in Latin America.

None of the countries in the CICAD program were able to carry out complete analyses of lost productivity. Most of lost productivity estimates in this study were based on two main data points: 1) persons unable to work due to incarceration and 2) deaths from traffic and other accidents related to drug use. Data on deaths were obtained through emergency rooms studies and were the only available data on drug related mortality in each country. ***This highlights a significant data gap that almost certainly exists across the region.***

The relative cost of drugs appears much lower in Latin American countries than in the United States. The US Government estimates that overall costs of drug abuse exceeded US\$180 billion in 2002, which translates into around 1.74% of GDP, while most of the countries in the CICAD study showed an impact between 0.2% and 0.5% in terms of GDP. However the data gaps in Latin American and Caribbean countries are much broader, making it difficult to draw meaningful comparisons. Nevertheless, countries that carried out in-depth analysis of the costs to their healthcare system parallel the experience in the United States and other developed countries, demonstrating that economic impact on the healthcare system is a source of significant costs to society. This implies that the consequences of the drug problem are universal, and countries that place greater weight on supply control must then ask themselves if they are indeed reaping benefits from this policy focus.

Through the course of the study, the participating countries reported indicated that the very exercise of the study forced collaborations that eventually served to strengthen the research institutions overall. Even though it is difficult to point to any political changes in such a short period of time, the program has clearly served to help organize research agendas across the countries that participated. Even the countries such as Chile and Mexico that had comparatively longer histories of data collection and research lagged far behind the US, Canada, France, Australia, New Zealand, that are considered world leaders in cost research. These countries too had to transform themselves to a certain degree in order to carry out their studies and convince the government and the public of their usefulness.

The fact that in each case the countries participating were looking at how expenditures are allocated put into perspective for the first time where investments on the drug problem are made, and to a limited extent, the outcomes of those investments.

Policy change takes time, and although the direct benefits of an economic and social impact study may not be felt for several years, it remains clear that developing countries have much to gain by carrying out such research. Countries not only developed concrete estimates of the magnitude of economic and social costs, but through that process, strengthened the infrastructure of the institutions that took on this enterprise.

Conclusions

The pilot study concluded that estimating the economic impacts of the drug problem in Latin American and Caribbean countries is possible. Direct costs could be measured by almost any country in the region, and most countries are capable of estimating a select number of indirect costs. We fulfilled the initial goal to carry out studies on the economic direct costs of drugs, or the cost of the drug problem in one conceptual area in each country. All six countries successfully completed studies on either the direct costs, or the costs in once conceptual area, and in Chile, Mexico, Costa Rica and El Salvador the countries were able to carry out more complete studies.

Expenditure profiles were similar across the Latin American countries, where supply control is generally the primary policy focus. Even in Costa Rica, which has strong policies supporting drug treatment and prevention, the vast majority of direct government expenditures were dedicated to supply reduction. This may be a result of political pressure from North American countries.

There are some important data limitations to this study. It is important to keep in mind that no two countries possessed exactly the same data. In addition the size of the economy and level of research infrastructure were quite different from one country to the other. As a consequence we do not recommend making direct comparisons between countries. We also strongly caution policy makers against reading too much into the differences between countries, but rather recommend that results be used to provide examine with care the impact of the drug problem nationally.

Significant data gaps were identified across countries, most importantly in the area of mortality and morbidity attributed to drug use, and in turn the lost productivity caused by this.

Although the studies findings indicate that almost any country in the region is capable of estimating direct costs, and possibly more, CICAD does not recommend that all countries should necessarily enter into cost studies at this time. A number of countries in the hemisphere do not yet have reliable basic data on the prevalence of drug use. Although this data is not necessary to calculate costs it is essential in terms of providing a context in which to interpret cost data. Any country considering a study of the economic impact of the drug problem should first ensure that it already has basic epidemiological data on the magnitude of the problem; otherwise a costing study would provide little useful information for policy...

Countries that do possess basic epidemiological data should consider beginning cost studies looking first at the direct costs of the problem and advancing gradually over time until they are in a position to carry out a reasonably complete analysis on costs.

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