

## **REPORT OF THE WADA WORKING GROUP ON ANTI-DOPING COSTS**

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*On 19 November, 2006 the WADA Executive Committee was presented with the report of the Working Group on Anti-Doping Costs (the Working Group).*

*The WADA Executive Committee acknowledged the work conducted by the Working Group and extended its gratitude to all of the members of the Working Group. The mandate of the Working Group is completed and there is no extension to its work.*

*During the discussions surrounding the report, it was highlighted that unfortunately, the rate of response to the questionnaires sent to stakeholders by the Working Group was rather low, despite an extension of the response deadline. The Executive Committee therefore concluded that the data collected does not have any real statistical significance and as a result, falls into the unreliable category. Furthermore, given the rate of response observed, the Executive Committee had to wonder whether the issue of costs is really as significant as described by some prior to the undertaking of this report. Anecdotal information is not supported by the evidence gathered by the Working Group.*

*In particular, the following points were observed by the Executive committee:*

*1. Laboratories*

*The data collected from laboratories is extremely limited, rendering the interpretation of such data almost impossible. In particular, the magnitude of the data received in relation to the costs of storage of samples makes it impossible to assess what such costs would really be.*

*2. TUE and Whereabouts*

*The magnitude of the costs highlighted in the report appeared reasonable to the WADA Executive Committee. There is no doubt that running a TUE or a Whereabouts program would entail such costs, but they seem to be reasonable and under control. Furthermore, the Executive Committee acknowledged the issue in relation to abbreviated TUEs. Such issue will be visited during the Code revision process. It is also understood that the Whereabouts system should improve with the increasing use of ADAMS which will potentially lead to a reduction in costs.*

*3. Testing*

*The costs for testing were the highest, which was not a surprise. The Executive Committee understands and agrees with the Working Group's recommendation that the efficiency of testing should be improved by intelligent testing (i.e., target testing) rather than random testing. ADOs will also find that perhaps better use of funds is achieved by employing investigators like ASADA.*

*Finally, the Executive Committee understands that potentially, the use of blood collection and analysis might lead to cost reduction for analyses.*

4. *The List*

*In relation to the List, the Executive Committee acknowledged the comments of the Working Group, but firmly reaffirmed that the substances on the List shall not be subject to any cost assessment but rather be included as a result of proper scientific discussion. The criteria for inclusion of substances and methods do not include cost analysis.*

*The Executive Committee decided that the Working Group on Costs Report should be sent by WADA management to WADA's working committees for their careful study.*

# **Costs of anti-doping**

**Report of the WADA Working Group on Anti-Doping Costs**

The Hague, the Netherlands  
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## **Executive summary**

### *Introduction and methods*

In September 2005 the Executive Committee of WADA created the Working Group on Anti-Doping Costs. The purpose was to investigate and report on issues regarding financial and human resource commitments and costs associated with implementing anti-doping programs and protocols in compliance with the World Anti-Doping Code.

To this aim, five questionnaires were created to address selected issues that were deemed to be the most important to include in a cost-related analysis. These issues are the costs of laboratories, handling TUEs, managing athlete whereabouts programs, performing testing programs, and specific issues related to the prohibited list. One or more of these questionnaires were sent to the relevant stakeholders (accredited laboratories, IFs, and NADOs). (note: an overview of used abbreviations is given in annex B).

### *Response*

The response rates varied between 23% and 33% amongst stakeholder groups. In general, this is deemed satisfactory, although less than anticipated. The questionnaires that were used needed to be very detailed, and as a consequence were rather time-consuming to fill out. While the statistical power of the results is unknown, it can be assumed that the responses represent the total group of stakeholders in general terms and therefore the acquired data can be seen as indicators of trends.

### *Laboratories*

The real costs of laboratory analyses are, on average, 24% higher than the unit costs (billed costs). This means that doping control analyses are often "silently subsidized" by other institutions (for example, governments, universities, hospitals). This is a serious problem and it is possible, if not probable, that the prices for analyses might increase, perhaps even greatly, in the upcoming years when additional analyses will be performed more often, such as blood analyses for growth hormone, synthetic haemoglobins, and blood transfusions. Unfortunately, reliable estimations for these new analyses could not be made.

An intensification of the coordination between testing authorities and labs is warranted to maximize the use of laboratory equipment, especially when specialized analyses are involved (e.g., EPO, IRMS). It is also worthwhile studying the possibility of cutting costs further by "adequate batching" of samples-to-be-analyzed, but not at the expense of an effective test distribution program.

A requirement to store all samples for a period of four or eight years would lead to significant costs (the estimated average is \$214,000 for set-up and an annual \$66,000 for recurring costs). In addition, the costs for individual labs might be even (far) greater. Another potential solution could be to restrict the long-term storage of samples to major events only.

### *TUE systems*

The TUE system costs on average 0.97 FTE and \$10,000 per year for IFs and 1.75 FTE and \$17,300 per year for NADOs. IFs spend on average 8.9% of their overall anti-doping program budgets on their TUE-systems and NADOs spend 5.5%. Most of these resources (75% of staff time and 55% of real costs) are being used for the ATUE systems.

The possibility of applying for a TUE is deemed important and should be maintained. However, it is the ATUE system, while meant to make the therapeutic exemption system easier that is paradoxically causing the greater inconvenience and the higher associated costs. Problems are experienced regarding the administrative burdens and a lack of mutual recognition of granted ATUEs. ADAMS is an obvious tool that might alleviate some

of the existing complaints. However, another solution might be to follow the recommendation of 40-50% of the responding IFs and NADOs to re-evaluate the TUE-regulations and try to lessen the burdens laid upon them, especially regarding the ATUEs. It is beyond the scope of the mandate of the Working Group on costs to discuss this issue more elaborately but it is clear that the current ATUE-system cannot be considered to be cost-effective at a satisfactory level.

#### *Whereabouts*

The whereabouts system costs on average 0.72 FTE and \$10,900 per year for IFs and 1.88 FTE and \$19,300 per year for NADOs. In general, the whereabouts systems are considered necessary and worth what they cost.

Since most whereabouts systems are rather young, many stakeholders feel that they are still in the implementation phase of their systems and thus further improvements are likely to occur. Improvements are likely to decrease costs as well, despite the fact that several start-up costs will be required. The most often named improvement is the use of ADAMS. Besides a call for improved harmonization in certain whereabouts issues (especially regarding missed tests policies and the coordination of registered testing pools), the Working Group does not recommend any additional measures.

#### *Testing program*

The testing program consumes the most resources in anti-doping work, as can be expected. Within IFs, 0.81 FTE and \$140,000 are involved in testing and 0.87 FTE and \$17,200 in result management. For NADOs, these amount to 3.74 FTE / \$963,000 and 0.90 FTE / \$89,500 respectively. NADOs allocate 69% of their overall anti-doping budget to urine testing and an additional 3% for blood testing. For IFs these percentages could not be calculated reliably.

These are significant costs, and the prices for analysing doping samples are rising. This means that testing authorities often cannot perform as many tests as they would like, or cannot plan them as effectively, and this again reinforces the need for an anti-doping program that is as cost-effective as possible.

Blood testing (when addressing only haematological parameters) can be seen as a relatively inexpensive way to strengthen a doping control program. To date, however, few IFs and NADOs are making use of blood tests.

Despite the fact that NADOs perform many more tests than IFs (on average: 1982 versus 853), the number of adverse analytical findings are not that much different between IFs and NADOs. This suggests that the tests performed by IFs (mainly targeted tests and tests on the highest elite levels) render a larger percentage of AAFs. The Working Group suggests assessing whether target testing is indeed more effective than regular testing in the sense that more positive cases result out of such testing. It was beyond the scope of its current mandate to study this subject in depth.

#### *Prohibited List*

38% of responding IFs and 60% of the NADOs report that at least one of the following substances necessitated specific attention (in time and/or money): beta-2 agonists, corticosteroids, T/E ratios, and for NADOs, cannabis. These substances require 0.27 and 0.79 FTE of staff time and an unspecified amount and \$39,500 for IFs and NADOs respectively. One third of these respondents commented that the associated extra time and costs, necessary for the education and legal fees associated with these substances could be better spent in other areas of their anti-doping programs, for example, in their testing programs.

### *Cost comparison of various aspects*

This study shows that the real costs (besides staff time) related to testing are relatively high. So high, that the costs associated with other aspects of anti-doping programs are just a fraction of the total budgets, and savings made in these areas, albeit important, may not contribute much to the testing programs that already exist.

The staff time, as contrasted with the costs, allocated to these specific anti-doping measures, however, is distributed differently. As with costs, the testing programs consume the majority of the staff time, but the other aspects of the anti-doping programs require significant time and efforts as well. To the extent it is possible to reduce the amount of staff time that is spent on the much criticized ATUE-system, it can be expected that other areas may benefit from the expertise that could be redirected.

In general, NADOs are able to put more resources into anti-doping in comparison with IFs. This is not surprising given their mandate. The only area where NADOs are slightly outperformed by IFs is the performance of blood testing. The efforts in this area could be improved.

### *General conclusions*

Aside from the conclusions noted above with respect to the specific elements of the anti-doping program, the Working Group on Anti-Doping Costs also identified some general conclusions.

First, it is clear that costs implications of anti-doping stir up a great deal of emotions. The amount of time that has been put in by stakeholders in answering the questionnaires is proof of their willingness to cooperate with the anti-doping rules and with efforts to improve these. But at times the responses also show some substantial concerns by stakeholders who want to comply with the international rules, but cannot do so because of cost constraints and other practical problems.

The TUE-system, a whereabouts-program, and a testing program are all necessary elements of an effective anti-doping policy, and thus require both financial and human resources. But a large minority of the respondents (approximately 30% of the IFs and 40% of the NADOs) point to the fact that the problems they experience in their daily work with these systems are not limited to costs. They also state that the rules should be reasonable, explainable and practical. At the moment many stakeholders feel that this is not the case, especially in the areas of ATUEs and the obligations they have regarding certain substances on the Prohibited List. They know that not all their wishes can be realized, but it is the firm belief of this Working Group that it is highly advisable to make some adjustments to the current WADP to address some of these concerns.

Finally, the Working Group is of the opinion that whilst all efforts to implement advancements in anti-doping regulations are to be supported, the cost implications in so doing need to be carefully considered in the decision-making process.

## **1. Introduction**

The fight against doping in sport is still developing. During this process there is a continuous effort to improve and streamline procedures. In this task the voices of the stakeholders should be heard to ensure that WADA's standards, models of best practice, and guidelines are supported by those who work with anti-doping measures on a daily basis and about which cost related matters are of concern.

This philosophy was the core of the establishment of the Working Group on Anti-Doping Costs. In order to be able to discuss this issue openly and fairly, insight should be provided into the costs associated with various aspects of existing anti-doping measures.

Despite the fact that it is acknowledged that from a principal point of view, cost should not be an issue in the fight against doping, priorities need to be established, and in so doing the issue of costs needs to be accurately addressed. This report is meant as a source of information for the decision makers in the fight against doping. At times, the Working Group decided to specify different options and to give an estimation of probable costs associated with potential policy measures.

The Working Group wishes to thank all respondents who wholeheartedly provided the valuable data. The questions were many in number and detailed in contents and obviously at times difficult to answer. The efforts of the respondents are greatly appreciated.

## 2. Establishment of the Working Group

In September 2005 the Executive Committee of WADA created the Working Group on Anti-Doping Costs. The terms of reference for this group were agreed and contained the following purpose, objectives and membership statements:

### *Purpose*

To investigate and report on issues regarding financial and human resource commitments / costs associated with implementing anti-doping programs / protocols in compliance with the World Anti-Doping Code.

### *Objectives*

The Working Group will concentrate on researching and analysing the financial and administrative aspects of anti-doping. Health and scientific matters will remain the work of the WADA Health, Medical and Research Committee. Its objectives will be to:

- 1) Provide concrete data and analysis on the financial / administrative costs of anti-doping analyses, including human, equipment and material investments for laboratories, distinguishing between substances for which analysis needs special investments (e.g. EPO, blood samples analysis) and substances which are often detected (e.g. Beta-2 agonists, glucocorticosteroids);
- 2) Provide data and analysis on the cost of and capacity of accredited laboratories to conduct full menu analysis (in collaboration with ongoing laboratory monitoring process), and on the cost to retain samples in storage for up to eight (8) years;
- 3) Examine and report on the cost of new analytical methods (e.g. EPO analysis and IRMS);
- 4) Provide analysis on the financial and administrative costs of Therapeutic Use Exemptions (including abbreviated TUEs);
- 5) Use case-study approach through cross-section of NADOs, IFs and laboratories with varying capacities to ensure data is actual and not anecdotal; and
- 6) Other subjects and issues associated with the management and conduct of anti-doping programs.

### *Members and assistants*

The following persons were assigned to be a member of the Working Group:

- Peter de Klerk (Ministry of Health, Welfare and Sport – the Netherlands) on behalf of the public authorities. Mr. De Klerk also served as chair.
- Patrick Schamasch (IOC Medical Director) on behalf of the Sports Movement, IOC.
- Sarah Lewis (International Ski Federation) on behalf of the Sports Movement, International Federations.
- Jeremy Luke (Canadian Centre for Ethics and Sport – Canada) on behalf of the National Anti-Doping Organizations.
- Luis Horta (Doping laboratory Lisbon – Portugal) on behalf of the WADA Accredited Laboratories.
- Gary Wadler (New York University School of Medicine – United States) on behalf of the WADA List Working Committee.

The Working Group was assisted by WADA management in the person of Olivier Niggli and Maria Pisani (respectively chief financial officer / legal director and financial controller). As WADA management Olivier Niggli and Maria Pisani did not take part in the drafting of this report.

At the request of the chair and after approval of the Working Group Olivier de Hon of Anti-Doping Authority the Netherlands (a merger of the Netherlands Centre for Doping affairs and Doping Control Netherlands) was added to assist the Working Group in analysis and in drafting the report.

### *Meetings*

Between December 2005 and March 2006 the Working Group held three teleconferences in order to develop the questionnaires that were to be sent to the various stakeholders. In August an in-person meeting was organized to discuss the collected data, to draw conclusions and to put together recommendations. In October 2006 the report was finalized during two teleconferences.

The working language of this study was chosen to be English.

### 3. Methods

There are several possible ways of performing a study into the financial costs and human resource commitments associated with anti-doping work. Because of the perceived need for a quick indication of costs, and in the absence of any other suitable former attempt in the anti-doping field, the Working Group decided to use questionnaires as a means to collect the data. This was considered to be the most cost-effective way to get access to the stakeholders involved in anti-doping.

The importance of the issue of cost was quickly made evident to the Working Group. Within two weeks of its official establishment an eight-page document was received from one of the existing NADOs which addressed several issues that were perceived to be "especially important". Enquiries and spontaneous advices from several stakeholders were to follow. This is obviously an area that has a special interest for several stakeholders and the input thus provided was used to develop the questionnaires.

#### *Questionnaires*

In total, five questionnaires were created by the Working Group. These addressed the following issues:

- Doping analysis in accredited laboratories
- Handling TUEs (abbreviated and standard)
- Managing an athlete whereabouts program
- Performing an anti-doping testing program (urine and blood)
- Specific issues related to the prohibited list (including education)

All questionnaires were created with the aim of addressing the most important cost-related issues in these five areas. They focussed on staff time (in Full Time Equivalents) and total costs besides staff time as these are uniform and accountable data that allow for global comparisons. For a complete overview of the questionnaires that were sent, see Annex A.

#### *Stakeholders*

The "Doping analysis in accredited laboratories"-questionnaire was sent to 33 WADA accredited laboratories. The remaining four questionnaires were sent to both the NADOs that had accepted the World Anti-Doping Code (representing 62 countries) and to summer Olympic, winter Olympic and other IOC-recognized IFs (70 in total). The IFs include six Paralympic IFs, approached via the IPC. These totals indicate all relevant stakeholders, with the exception of public authorities, known to WADA in March 2006.

#### *Procedures*

All questionnaires were sent out on 11 April 2006 with a four-week deadline. The deadline of response was later extended to 21 June 2006. The notice of this extension also served as a reminder to return the questionnaires. When not all questionnaires were returned (this happened on three occasions), an extra reminder was sent to ask whether this incomplete response was intended. This did not lead to any extra submissions.

After discussions of the acquired data from the aforementioned questionnaires, the Working Group decided to explore the possibility of conducting some case-study approaches. These case-studies targeted two NADOs and two IFs in relation to TUEs (written questionnaires) and the chairman of WAADS in relation to IRMS-testing. The backgrounds of these additional efforts are described in the relevant sections.

*Presentation of results*

All data will be presented confidentially and anonymously, as promised to the respondents at the time they were sent. The collected data has been and will be used solely for the purpose of this particular study.

All costs are in US\$ and larger amounts are rounded in order to improve the readability of the report. The data are often reported as means with the range of all responses in brackets: mean (minimum – maximum). Only simple statistical measures are used and no other statistically analyses are performed. The Working Group recognizes that because of the nature of the data provided by the stakeholders this report is more reflective of patterns and trends rather than being statistically significant.

Whilst we endeavoured to focus on costs and human resources in accountable measures (dollars, full time equivalents), the report also mentions qualitative feedback from stakeholders when this was deemed to be valuable additional information.

## 4. Response

### *Response rates*

The response rates for the various target groups are listed in table 1.

Table 1. Response rates

Target group	Response (received / sent)	Response (%)
Laboratory response	8/33	24.3%
IF response	16/70	22.9 %
NADO response	20/62	32.3%

In general, the responses to the various questionnaires are satisfactory, although less than anticipated. Initially the Working Group was hoping for a higher response rate but it realizes that response rates of 25-30% tend to be commonplace and are therefore internationally acknowledged as being a reasonable response to medium-lengthy written questionnaires. It is also acknowledged that the questionnaires that were used were very detailed, and thus rather difficult to fill out. Most organizations do not have budgets or annual reports with this much detail, and thus the answers provided are sometimes based on rough estimates or approximations because the stakeholders were unable to generate financial reports to specifically answer these questions. Moreover, the IFs and NADOs had received several questionnaires for other initiatives in the preceding months and the laboratories were somewhat reluctant to submit commercially sensitive data such as costs of analysis, despite the assured anonymity. One IF did not fill out the questionnaires because they were only available in English.

Those stakeholders that did respond were more than willing to cooperate with this kind of detailed questionnaires. The NADOs, laboratories and federations that did submit their questionnaires often put a lot of effort in the process of filling them out, and offered to provide extra information if necessary. Those who did not return the questionnaires mostly blamed this on a lack of time or a lack of available data.

For the laboratories an extra confounder can be identified as they are in certain instances, in fact, each other's competition. This was part of the reason why the response rate amongst laboratories was rather low. Quite a few of the laboratories did not want to share commercially sensitive data and three laboratories officially answered that they did not want to respond to the questionnaires because of these sensitivities (these laboratories are not included in the response).

All in all, the Working Group feels that although the response might be considered to be low, it is sufficient to draw some general conclusions and focus on trends. We emphasize that the response rate should not be seen as an indication that the issue of costs is perceived to be of little importance, but is most likely to be a consequence of the level of detail that was asked for and of the multitude of questionnaires that doping organizations have received over the last few years.

### *Representativeness*

It can be assumed that the responses represent the total group of stakeholders in general terms and therefore the acquired data can be seen as indicators of trends. While the statistical power of the results is unknown (the exact characteristics of the entire group of IFs and NADOs are unknown), the responding stakeholders give an overview of the existing variations in magnitude for laboratories, IFs, and NADOs alike.

The responding laboratories analyzed on average 4000 samples per year. When all existing WADA-accredited laboratories are ranked according to the number of samples per year that they process, the response group contains two top-10 laboratories and an additional two top-20 laboratories.

In the IF-response the IOC recognized IFs and the Paralympic sports are underrepresented: 28 ASOIF members, 7 AIOWF members, 29 IOC recognized IFs and 6 Paralympic IFs were questioned and 9 ASOIF members (32%), 3 AIOWF members (43%), 4 IOC recognized IFs (14%), and 0 Paralympic IFs responded. Three respondents explained that they have not enough data available to fill out all the questionnaires, which makes the valid response for the IFs 13/70 or 18.6%.

Regarding the NADO-response, the geographical distribution was somewhat skewed: 13/30 (43%) European, 1/12 (8%) African, 2/11 (18%) Asian, 2/5 (40%) North and Central American, 1/2 (50%) Oceanian, and 1/2 (50%) South American. This means that Africa and Asia are underrepresented. One NADO responded that they did not have data available on 2005 and thus did not fill out the questionnaires, which makes the valid response for NADOs 19/62 or 30.6%.

The magnitude of the responding NADOs and IFs can also be inferred from the basis of the number of urine tests they perform. Especially the NADOs are represented in the response group by a broad range of the number of tests performed (see table 2). Since there is no official overview of the number of tests that are performed by all IFs or NADOs, it cannot be determined how representative this distribution of performed urine tests in the response group is. The broad range does ensure that both small and big stakeholders are included in the analysis.

Table 2. Magnitude of responding testing authorities.

# of urine tests	# IFs	# NADOs
0-100	8	3
101-500	2	3
501-2000	2	5
2001-4000	1	5
4001 +	0	2
Left blank	3	2

## 5. Results

The results of the five questionnaires will be presented one by one.

### 5.1 Laboratories

#### *General*

The unit costs, or the billed costs, of an A-sample analysis (including confirmation) are on average \$267 (range \$150-357). B-sample analyses cost \$465 (\$100-1760). The real costs of analysis, however, are quite often higher than the unit costs. This was reported by 75% of the responding laboratories. This means that doping control analyses are often "silently subsidized" by other institutions (for example, governments, universities, hospitals). On average, the real costs for these six laboratories are 24% higher than the unit costs.

The relative contribution of human resources, equipment amortization, materials, and administrative costs varies largely between laboratories. All four categories are mentioned by different laboratories as the most costly contribution to the unit costs of a regular analysis. However, on average these four categories amount to approximately similar costs for regular A- and B-analyses.

#### *Specific analyses*

EPO analyses were performed by three respondents. They cost an additional \$424 on average (range \$316-500). The greatest expenses for this type of analysis (52%) are the materials used. IRMS analyses were performed by five respondents. The costs for one IRMS analysis are around \$350-400. Most costs are related to equipment amortization (35%) and the materials that are used (33%). HSMS analyses were performed by six respondents. These costs are often included in the regular analysis. Most costs in this type of analysis are related to equipment amortization (46%).

Blood sample analyses were performed by three respondents. As this is still a relatively new procedure, it was not possible for two of these respondents to divide these costs into the four identified categories (analysis of growth hormone, synthetic haemoglobins, blood transfusions, and the determination of so-called "health-test" parameters). The only blood sample analyses that were performed by all these respondents were the determination of haemoglobin, hematocrit, and reticulocytes. Determination of haematological-levels is relatively cheap (real costs are \$3-38). Just one responding laboratory performed blood samples analysis for possible homologous transfusion and for artificial haemoglobins, at a cost of \$342.

These low responses in the area of blood analyses make clear that this is still a new area for the accredited laboratories. It can however be expected that blood analyses will become increasingly important for doping testing. Albeit not being a true "anti-doping test", the low costs for haematological determinations are promising in this respect. The determination of blood parameters can play a role in longitudinal data gathering and in target testing. As "health tests" they also play a role as a preventive tool when used for issuing "no start" declarations. The data suggest that the costs associated with blood parameter testing are not likely to be a hindering factor in their larger scale application (see also paragraph 5.4).

Other new blood analysis technologies (for growth hormone, synthetic haemoglobins and blood transfusions) will unquestionably result in substantially increased costs but at the moment the magnitude of the increase is unknown. On the other hand, the broader scale application of such techniques might also result in a reduced price of such tests.

The available data indicate that the price of an IRMS test is about 140% of the cost of a regular A-sample analysis. This has consequences for the course of action after finding a raised T/E ratio. It means that an IRMS test is far cheaper than the performance of three additional samples, even when just the costs of analysis are taken into account and the costs of sample collection are disregarded. It should however be acknowledged that a negative IRMS result does not always prove the athlete free of testosterone abuse, and in this case historical data or new controls are still needed.

The costs for the different analyses are summarized in table 3.

Table 3. The average costs of doping analysis

Analysis	Average costs	Highest costs associated with
Regular A – billed	\$267	-
Regular A - real	\$330	-
Regular B - billed	\$465	-
Regular B - real	\$574	-
EPO	\$424	materials
IRMS	\$375	equipment amortization & materials
HSMS	included	equipment amortization
Hb-determination	\$21	equipment amortization

#### *Case-study approach to IRMS testing*

In order to get a better estimation of the costs that are involved in IRMS-analyses, the Working Group decided to use its mandate for possible case-study approaches and asked WAADS to provide some extra information on this issue. While acknowledging that it is very difficult to supply a single universal figure that takes into account the very broad variability of costs around the world, some general costs of IRMS analysis can be identified if such a procedure would be implemented in every WADA-accredited lab.

Such an implementation would necessitate hiring an extra dedicated senior analyst solely for IRMS-testing, as the procedure is not very robust yet. This would probably cost \$50,000 a year. Adding estimates for equipment amortization (\$250,000 in eight years), a maintenance contract (\$20,000 per year), running costs such as electricity (\$20,000 per year), consumables (\$20,000), and an overhead value of 40% of the total such costs would add up to approximately \$200,000 a year. When performing 100 samples per year, the cost per sample would be \$2,000.

This estimated value of performing IRMS-testing in every WADA-accredited laboratory is more than five times higher than the value provided in the responses. There are various possible reasons for this discrepancy. Most likely, it is caused by the fact that the general estimations made by WAADS are different than the specific estimations made within a laboratory. And the responding laboratories might well perform more than 100 tests per year, and are more experienced in the procedure. It is, however, most likely that the costs for full-scale implementation of IRMS-testing will be higher than \$375 per sample.

#### *Retaining samples for four or eight years*

In 2004 WADA has increased the period of obligatory storage of urine samples to a minimum of three months (article 5.2.2.6 of the International Standard for laboratories, version 4.0). Since the WADC states that the statute of limitation for a doping offence is eight years, the questionnaire also addressed the costs associated with investments to store all samples for such a period or for half this period. These costs would include construction costs for extra capacity, purchasing extra freezers and generators, and annual maintenance and annual costs.

The responses to these questions varied largely. For one lab, such an investment was said to be impossible as they would need to build extra accommodations for this, and the space is simply not available.

For the other laboratories, on average 23,000 samples per laboratory will need to be stored for four years. This would require \$670,000 per laboratory for set-up costs and an annual \$100,000 per laboratory for recurring costs (for example, maintenance, energy, security of facility, control of appropriate temperature). Increasing the storage requirements to eight years, would raise these figures to 45,000 samples, \$1.15 million for set-up and \$186,000 annual costs.

As noted, these costs vary greatly per laboratory (from \$2,000 to \$6,000,000), and this variation is not just a function of the number of samples involved. No other reason could be found for this large variation. To provide a more accurate estimation of the average costs involved, table 4 lists the average costs after leaving out the lowest and the highest figures of the responding laboratories.

Table 4. Estimated average costs of long-term storage of samples (large variations).

Item	4 years	8 years
# samples	28,500	58,000
Set-up costs	132,000	214,000
Annual costs	50,000	66,000

These are significant costs, and it should not be forgotten that for individual laboratories the costs might be even (far) greater. Other potential solutions to accommodate for the statute of limitations would be to restrict the long-term storage of samples to major events only, or to leave the decision (and the associated costs) in the hands of the organisers of events instead of the laboratories. This last "solution", however, will not aid the much sought-after harmonization in anti-doping.

*Other matters*

Of the responding laboratories, 63% think that an "adequate batching" will reduce the costs of the anti-doping analysis. The other responding laboratories do not think that this area can be improved much. There is no relationship between the magnitude of the laboratory and their opinion in this matter.

The term "adequate batching" is used to describe a more continuous flow of samples-to-be-analyzed that arrive at the laboratory (this would reduce costs; for example, in EPO-analysis this would mean that the gels used for electrophoresis can be used to their full extent and for multiple samples instead of having to make new gels for every sample). This can be achieved with improved consultation between the labs, IFs, NFs and NADOs. While such improved batching could lower lab costs, it might compromise the effectiveness of the testing program. This is obviously an area where the desire for cost-containment can potentially clash with the implementation of effective anti-doping measures.

**5.2 TUE systems**

*General*

Since the Paralympic IFs were underrepresented in the response, and since Paralympic athletes can be expected to require a TUE relatively often, it must be taken into account that the results presented in this section might be on the low side.

*ATUE*

All but one IF handle their ATUEs in house. IDTM is servicing the one IF exception. Likewise, all but one NADO handle the ATUEs in house. The exception is a very small NADO that “does not see doping control as a priority within their organization” (sic).

The number of ATUEs that are processed annually varies greatly and the amount of resources it requires is significant: on average, 0.72 FTE in IFs and 1.40 FTE in NADOs are busy processing TUEs (handling mail to athletes, WADA and other stakeholders) and supporting TUE-systems (education to athletes and support personnel). The total amount of staff time that a stakeholder spends on ATUE-related work is not correlated with the number of ATUEs that are processed within that organization.

The system is about twice as resource consuming for NADOs than for IFs, which includes the TUE-related costs other than staff, such as mailing costs, databases, and educational efforts (see table 5).

Table 5. Characteristics of ATUE systems

Parameter	IFs	NADOs
Number of ATUEs	182 (1-901)	539 (0-1712)
Staff time - Processing	0.42 FTE (0.03 – 1.0 FTE)	0.84 FTE (0.15 – 4.0 FTE)
Staff time - Supporting	0.30 FTE ("occasional" – 0.5 FTE)	0.56 FTE (0.05 – 2.50 FTE)
Annual costs other than staff	\$4,250 (0 - \$23,750)	\$10,500 (\$400 - \$80,300)

The large variation in costs can quite certainly be attributed to the fact that some respondents have implemented large scale databases, where others deal with ATUEs on a case-by-case basis. This also explains part of the differences between IFs and NADOs: as IFs already might have had access to databases, given their broader mandate than anti-doping alone, it would have been easier (and thus cheaper) for them to add anti-doping matters to these existing resources, whereas NADOs often needed to start from scratch.

*TUE*

Regarding regular TUEs the differences between IFs and NADOs are not as large, but still are present (see table 6). The TUEC hours per case for IFs are quite often put in by volunteers.

Table 6. Characteristics of TUE systems

Parameter	IFs	NADOs
Number of TUEs	21 (0-88)	68 (3-245)
Staff time - Processing	0.25 FTE (0.01 – 1.0 FTE)	0.35 FTE (0.03 – 1.0 FTE)
TUEC hours per case	1.6 (0.25 – 5)	2.6 (0.5 – 10.5)
Annual costs other than staff	\$4,800 (0 - \$18,000)	\$6,800 (\$160 - \$36,300)

*Other matters*

The IFs stated that an average of 8.9% of their overall anti-doping program budget was allocated to the TUE process. For NADOs this percentage was 5.5%. This is a substantial cost for a system that in general is deemed necessary, but in its present status is often regarded as rather cumbersome. The questionnaires were used by many respondents to

explain their view that the current TUE process can and should be improved, especially regarding ATUEs.

Amongst the IFs, half of the respondents are satisfied with their current TUE system, whereas half are not. This latter group is predominantly critical of the workload associated with the TUE-process, and some are heavily relying on NFs and NADOs to do the work. Of the NADOs, 44% of the valid response (accounting for 57% of all ATUEs) have problems with the current system, especially regarding lack of mutual recognition and other day-to-day problems in the (lack of) communication between NADOs and IFs. Specific complaints that are mentioned are the lack of TUE-committees within IFs, unclear international registered testing pools, unclear requirements for lower level national athletes, overlapping responsibilities between NADOs and IFs, inability to communicate with laboratories about TUEs, dealing with medical professionals who, despite their general love of sports, do not understand the rationale in the current obligations that are laid upon them, and general administrative duties. Four of the respondents go as far as to say that the current ATUE system is more complicated and time consuming than its "value" warrants and that it does not really prevent the potential misuse it was intended to handle.

Fears are that the current system is not only disproportional costly, but the rules and regulations involved alienate the athletes and medical professionals from otherwise very important doping regulations. In addition, it is feared that future new requirements for lung function tests might worsen this even more. It can be concluded that besides the significant costs, the qualitative data collected in the course of this study also suggest that the TUE system warrants some critical re-evaluation and, in the eyes of many respondents, is ready for simplification.

These remarks are literally derived from the responses to the open questions in the questionnaires. While they do not involve direct costs in dollars or in full time equivalents, they do show that in the eyes of many stakeholders the available money is not being optimally spent.

An obvious manner to reduce the TUE-related costs would be through the widespread use of ADAMS. This newly developed management software that WADA will distribute at no cost was also addressed in the questionnaires, and six IFs plan to use it in the future and two are studying it. Four NADOs plan to use it, and several are contemplating this. There are some doubts among four respondents whether ADAMS would be suitable for them, especially from a legal perspective.

Another solution would be to follow the recommendation of several IFs and NADOs to change the TUE-regulations and perhaps even the Prohibited List itself in a way that would ensure a lower amount of TUEs that need to be handled by the testing authorities. This "solution" was mentioned by three stakeholders but debating the pros and cons of such a regulatory change falls out of the scope of the Working Group on anti-doping costs.

Amongst IFs, up to four Adverse Analytical Findings per year were related to a previously granted TUE and up to 52 ATUEs explained AAFs (11 on average). For NADOs up to 47 Adverse Analytical Findings per year were related to a previously granted (A)TUE (10 on average). WADA's directive that ADOs and laboratories are not allowed to communicate about TUEs that athletes might possess is understandable from a legal point of view since the testing in the laboratories should be performed on a strict anonymous basis. But most of the work for laboratories and ADOs associated with these findings (confirmation of analysis and providing full documentation packages) could be avoided if laboratories and ADOs could find an anonymous way of sharing this kind of information.

### *Case-study approach to ATUE handling*

Because of the often mentioned dissatisfaction of the current ATUE-regulations, the Working Group decided to use a case-study approach and ask additional questions on this subject to two IFs and two NADOs. These questions addressed the possibility of changing the current ATUE-requirement of submitting all relevant documentation beforehand into a system where such medical information can be submitted after an AAF had been determined by the lab, either only for national level athletes or for all athletes.

The four selected stakeholders were not specifically chosen to be either critical of or supportive of the current regulations. The answers, however, were varying from clear disapproval of any changes to the system (one NADO) to a wish for a thorough review of keeping beta-2 agonists and glucocorticosteroids on the list (one NADO and, for beta-2 agonists, one IF). The final IF did not have a specific opinion on this matter. Despite the fact that savings of up to 80% can be expected from the hypothetical changes in the ATUE system, the majority response in this small exercise was that these changes would not be favourable.

### **5.3 Athlete whereabouts programs**

#### *General*

Ten of the IF-respondents have experience with an athlete whereabouts program in 2005. One is focussed on 24 teams, another one on an unspecified number of teams. The other programs service 30-1550 athletes (417 on average). For the NADOs, fifteen of the respondents have experience with an athlete whereabouts program in 2005. One is focussed on 150 individuals and 7 teams, the other programs service 100-3700 athletes (1156 on average).

The varying magnitude in these athlete pools is reflected in the amount of resources the testing authorities are allocating to the management of their whereabouts programs (see table 7). The actual monitoring of information, including database design and management, takes up most of the costs (around 55-60% of all administering costs). NADOs also spend 0.43 FTE (range 0.01–3.0 FTE) on the associated education about the whereabouts program for athletes. For IFs these data were often not available.

Table 7. Characteristics of whereabouts systems

Parameter	IFs	NADOs
Number of athletes in whereabouts program	417 (30-1550)	1156 (100-3700)
Staff time	0.72 FTE (0.05 – 2.5 FTE)	1.88 FTE (0.05 – 7.5 FTE)
Administering costs excluding staff time	\$7,100 (\$1,000 – \$30,000)	\$12,500 (\$200 – \$85,000)
Education costs excluding staff time	\$3,800 (\$1,000 – \$8,000)	\$6,800 (\$200 – \$26,500)

#### *Other matters*

Most IFs classify their current whereabouts system as “satisfactory”. Of the NADOs only one third are satisfied, with another third rather critical. Most complaints are targeted at the time it takes to maintain the system, the administrative burdens that come along with it, the often unanswered question of what should be considered “necessary whereabouts information”, the lack of global harmonization in managing a whereabouts system and, as a follow-up, the lack of harmonization in missed tests policies. In similarity to the lack of mutual recognition regarding TUEs in the field of practice, it is difficult to coordinate registered testing pools between NADOs and IFs.

Regarding these problems, many NADOs feel that they are still in the implementation phase of their systems and thus improvements are likely to occur. Improvements are likely to decrease costs as well. Improvements are planned by 60% of the responding IFs with a whereabouts system. For NADOs this percentage is 80%. The most often named improvement is the use of ADAMS.

The question about the time these improvements will take could be interpreted in two different ways (recurring time for maintenance versus implementing time for new developments). This question was often not filled out, but six NADOs estimate that the necessary improvements will take on average 1140 hours per year (range 40-2000 hours). The other five responding NADOs estimate they will need on average 320 hours of development (range 8-975 hours). Costs besides staff time will be around \$16,000 per NADO (range \$200–51,500).

## **5.4 Testing programs**

### *General*

On average, 37% of the IF-staff and 58% of the NADO-staff are involved in anti-doping matters regarding sample collection and results management. The questions on the percentage of overall anti-doping budget that is allocated to testing were not answered coherently by IFs (in retrospect the question was not clear enough) and therefore could not be analyzed. For NADOs this percentage is 69% for urine testing and 3% for blood testing.

The prices for analysing doping samples are rising. Even though laboratories often do not charge the real price for analyses (see paragraph 5.1), both IFs and NADOs are confronted with increased costs to finance their testing program. One NADO had to decide to lower the amount of tests performed (from 4000 to 3500) because of the financial burdens in this and other areas and another respondent indicated that they cannot fulfil WADA's Model of Best Practice for test distribution planning because of financial limitations.

When analyzing these figures it must be borne in mind that strong testing programs do not only rely on a large amount of tests. It is important to use all pieces of information that are available to perform what is fashionably called "intelligent testing". Yet, it is a disturbing sign that testing authorities are not able to perform the amount of testing that they feel is necessary because of financial reasons.

### *Collection of samples*

The tests that are performed and the concomitant financial and human resource aspects are presented in table 8.

In terms of numbers, NADOs carry out the most urine testing, but it is striking to see that despite the fact that about half of the NADOs also have experience in blood tests, the IFs perform far more blood tests than NADOs. Several IFs have implemented a large scale blood testing program that raises the average dramatically.

In a case-study approach largely directed at TUE-related items (see paragraph 5.2), two NADOs and two IFs were asked if any barriers are experienced to implement a full scale blood testing program. The barriers reported were lack of money, staff requirements (particularly regarding their education), and logistics.

Table 8. Characteristics of testing programs

Parameter	IFs	NADOs
Number of urine tests	528 (4-3347)	1938 (0-8173)
Number of blood tests	325 (0-1857)	44 (0-216)
Staff time on planning and coordination (urine)	0.42 FTE (0.01 – 1.0 FTE)	1.58 FTE (0.01 – 8.0 FTE)
Staff time on managing databases (urine)	0.22 FTE (0.0 – 1.0 FTE)	0.84 FTE (0.0 – 3.0 FTE)
Total staff time on urine testing	0.68 FTE (0.03 – 2.0 FTE)	3.51 FTE (0.01 – 14.0 FTE)
Total staff time on blood testing	0.13 FTE (0.0 – 0.5 FTE)	0.23 FTE (0.0 – 0.25 FTE)
Testing costs (urine and blood) excluding staff time	\$140,000 (0 – \$473,000)	\$963,000 (\$6,400 – \$4,480,000)

From a cost perspective, blood tests are interesting since the price of analysis is relatively cheap when “only” haematological parameters such as haemoglobin, hematocrit and reticulocytes are analysed (see paragraph 5.1; specialized analysis of synthetic haemoglobins, homologous transfusions and growth hormones do cost extra money). Although not addressed in the questionnaires, the Working Group expects that even with the expected higher costs of sample collection (due to the specialized DCO and transport requirements) blood testing for haematological parameters related to oxygen enhancing substances or methods can be regarded as an effective and relatively inexpensive way of testing to assist an anti-doping program because it permits close monitoring of athletes on a regular basis.

The hard costs (anything but staff-related costs) accompanying testing vary largely between organizations. The costs related with blood tests could not always be separated from urine tests and thus these are presented collectively. By far the most costs are related to the planning and coordination of urine testing. This holds true for both the hard costs and the staff time.

#### *Results management*

The number of adverse analytical findings and the associated resources to handle these findings are summarized in table 9.

Table 9. Characteristics of results management

Parameter	IFs	NADOs
Number of AAFs	31 (0-322)	40 (0-156)
Staff time for results management (urine)	0.69 FTE (0.05 – 1.5 FTE)	0.89 FTE (0.0 – 3.0 FTE)
Staff time for results management (blood)	0.18 FTE (0.00 – 0.50 FTE)	0.01 FTE (0.00 – 0.05 FTE)
Total costs for results management excluding staff time (urine)	\$15,800 (0 – \$70,000)	\$88,700 (\$100 – \$972,000)
Total costs for results management excluding staff time (blood)	\$1,400 (0 – \$5,000)	\$750 (0 – \$3,000)

Despite the fact that NADOs perform many more tests than the IFs, the number of AAFs are not that much different between IFs and NADOs. This suggests that the tests performed by IFs (mainly targeted and on the highest elite levels) render a larger percentage of AAFs. These data raise the question as to whether target testing is indeed more cost effective than regular testing in the sense that more positive cases result out of such testing. This question, albeit interesting, is beyond the scope of the Working Group's current mandate. When discussing this topic it should also be realized that the effectiveness of an anti-doping program cannot only be judged by the number of AAFs encountered; it is very well possible to run a highly effective anti-doping program with a very low number of AAFs.

The staff time involved in results management is not that different between the two groups of stakeholders, but NADOs do spend more money on database systems, fax, email, legal fees, documentation, etcetera. This seems to be a logical consequence of the differing tasks of NADOs and IFs. Since IFs exist to run a sport with anti-doping obligations being just one of various aspects, they will use these resources for other parts of their work as well, whereas NADOs exist solely for the purpose of anti-doping and thus will have to acquire these resources solely for their anti-doping work.

## 5.5 Prohibited List

### *General*

The prohibited list is in itself one of the most eye-catching items in any anti-doping program. It is associated with specific costs as stakeholders need to educate athletes and support personnel continuously about the substances and methods (predominantly medicinal products) that are on it. The staff time and real costs that are associated with this task are listed in table 10. Most money is spent on educational materials and associated extra costs (external telephone hotline, outreach program).

Table 10. Characteristics of prohibited list related costs

Parameter	IFs	NADOs
Staff time for educational efforts	0.80 FTE (0.02 – 2.50 FTE)	1.22 FTE (0.08 – 4.0 FTE)
Education costs excluding staff time	\$6,800 (\$200 – \$2,000)	\$44,000 (\$500 – \$188,500)

When asked if any substances on the WADA Prohibited List in 2005 resulted in significantly more staff-time or real costs to their respective organizations, the stakeholders mentioned various specific substances or groups of substances. If these were mentioned by more than one stakeholder, they are listed in table 11. The number of stakeholders that mentioned this specific substance is mentioned between brackets. These comments were made by six different IFs (38% of the response) and twelve different NADOs (60%).

The presence of beta-2 agonists on the prohibited list is most often mentioned to cause extra costs. Together with corticosteroids, they require a lot of extra attention, especially in relation to the administrative duties of the ATUEs involved.

Third on this list is the necessary results management and extra investigations that are required for elevated T/E ratios. Especially the lowering of the T/E threshold from six to four prompted a lot of reactions (indeed, the annual laboratory statistics published by WADA showed an increase in 2005 from 392 (the 2004 value) to 1132 (+189%) testosterone-related AAFs whereas the total amount of analyzed samples increased just 8% and the official number of total AAFs increased "only" 34%. This is most likely due to

the fact that laboratories need to report all T/E values above four, even though officially these do not constitute AAFs).

Finally, the NADOs mention they need extra resources because cannabis is on the prohibited list which requires extra result management and elaborate educational efforts to athletes and media.

Table 11. Substances that resulted in specific significant costs

Parameter	IFs	NADOs
Substances resulting in more staff time (# respondents)	Beta-2 agonists (5) Corticosteroids (4) T/E ratio (2)	Beta-2 agonists (6) Corticosteroids (7) T/E ratio (7) Cannabis (4)
Amount of extra staff time	0.27 FTE (0.12 – 0.50 FTE)	0.79 FTE (0.10 – 3.50 FTE)
Substances resulting in more costs (# respondents)	Beta-2 agonists (2)	Beta-2 agonists (3) Corticosteroids (4) T/E ratio (7) Cannabis (3)
Amount of extra costs	Often not reported	\$39,500 (\$600 – \$294,000)

For all these substances, the respondents that mentioned them feel that the educational efforts and legal fees associated with these AAFs could be spent much more effectively in other areas of their anti-doping programs. Especially some of the responding NADOs are very critical of the presence of these substances on the prohibited list.

## 6. Conclusions and recommendations

In this section, the most important conclusions discussed earlier in this report will be repeated and some recommendations will be presented in an effort to contribute to the continuous improvement of the worldwide fight against doping. The values that are mentioned in these paragraphs are all averages. The numerical ranges found in the answers are very large, reflecting, amongst other reasons, the existing variations in magnitude for laboratories, IFs, and NADOs).

### Laboratories

The real costs of laboratory analyses are often much higher than the unit costs (billed costs). This means that doping control analyses are often “silently subsidized” by other institutions (for example, governments, universities, hospitals). The results show that the real costs were, on average, 24% higher. This is a serious problem and it cannot be excluded that the prices for analyses might increase, perhaps even greatly, in the upcoming years when additional analyses will be performed more often, such as blood analyses for growth hormone, synthetic haemoglobins, and blood transfusions. This reinforces the need for an anti-doping program that is as cost-effective as possible.

The Working Group concludes that from a cost perspective an intensification of the coordination between testing authorities and laboratories is warranted. Since a majority of the laboratories responding to the questionnaire think that “adequate batching” will indeed reduce costs, it is worthwhile to further study this possibility. Especially when specialized analyses are involved (EPO, IRMS) it can be expected that appropriate batching could help to lower the costs, but this should never interfere with the effectiveness of a test distribution program.

Since the WADC states that the statute of limitation for a doping offence is eight years, this study also addressed the costs associated with investments to store all samples for such a period. This would lead to significant costs (the estimated average is \$214,000 for set-up and an annual \$66,000 for recurring costs, such as maintenance, energy, security of facility, control of appropriate temperature), and in addition the costs for individual laboratories might be even (far) greater (exceeding millions of dollars). A requirement to store all samples for four years would cost approximately two thirds of these prices. Another potential solution to accommodate for the statute of limitations would be to restrict the long-term storage of samples to major events only.

### TUE systems

The TUE system costs on average 0.97 FTE and \$10,000 per year for IFs and 1.75 FTE and \$17,300 per year for NADOs. Most of the resources (75% of staff time and 55% of real costs) are being used for the ATUE systems.

The possibility of applying for a TUE should be maintained. However, it is the ATUE system, while meant to make the therapeutic exemption system easier, that is paradoxically causing the greater inconvenience and the higher associated costs. About half of the stakeholders expressed their discontent with the administrative burdens that accompany the ATUE-process. In addition, the current regulations on IF/NF differences and the problems surrounding the (sometimes absence of) mutual recognition of granted ATUEs have raised a lot of questions. Both IFs and NADOs report their experiences with medical professionals who, despite their general love of sports, do not seem to adequately understand the rationale in the current obligations that are laid upon them.

ADAMS is an obvious tool that might alleviate some of these complaints, but another solution would be to follow the recommendation of several IFs and NADOs to re-evaluate the TUE-regulations and try to lessen the burdens laid upon them, especially regarding the ATUEs. It is beyond the scope of the mandate of the Working Group on costs to

discuss this issue more elaborately but from the qualitative data collected in this report it is clear that many stakeholders strongly feel that the money could be spent more effectively with a changed ATUE-system.

### **Athlete whereabouts programs**

The whereabouts system costs on average 0.72 FTE and \$10,900 per year for IFs and 1.88 FTE and \$19,300 per year for NADOs. In general, the whereabouts systems are considered necessary and worth what they cost. In addition, most IFs classify their current whereabouts system as "satisfactory". One third of the NADOs are rather critical with most complaints referring to practical issues and, in particular, to the lack of global harmonization in managing a whereabouts system and the lack of harmonization in missed tests policies. Akin to the lack of mutual recognition regarding TUEs, it is difficult to coordinate registered testing pools between NADOs and IFs.

Since most whereabouts systems are rather young, many stakeholders feel that they are still in the implementation phase of their systems and thus improvements are likely to occur. Improvements are likely to decrease costs as well, despite the fact that several start-up costs will be required. The most often named improvement is the use of ADAMS. Besides the call for improved harmonization in whereabouts issues, the Working Group does not recommend any additional measures.

### **Testing Programs**

The testing program consumes the most resources in anti-doping work, as can be expected. On average, 37% of the IF-staff and 58% of the NADO-staff are involved in anti-doping matters regarding sample collection and results management. NADOs allocate 69% of their overall anti-doping budget to urine testing and an additional 3% for blood testing. For IFs these percentages could not be calculated reliably.

Within IFs, 0.81 FTE and \$140,000 are involved in testing and 0.87 FTE and \$17,200 in result management. For NADOs, these amount to 3.74 FTE / \$963,000 and 0.90 FTE / \$89,500 respectively. With respect to the testing program, the following conclusions can be drawn:

These are significant costs, but the prices for analysing doping samples are rising, and so are the other anti-doping costs that are laid upon IFs and NADOs. This means that testing authorities often cannot perform as many tests as they would like, or cannot plan them as effectively, and in one case a NADO even had to decrease their amount of urine tests because of these reasons. It is worrisome that this could become a trendsetting example.

Blood testing (when addressing only haematological parameters) can be seen as a relatively inexpensive way to strengthen a doping control program. To date, however, few IFs and NADOs are making use of blood tests.

It must also be borne in mind that strong testing programs do not only depend on a large number of tests. It is important to use all pieces of information that are available to perform what is fashionably called "intelligent testing".

Despite the fact that NADOs perform many more tests, the number of AAFs are not that much different between IFs and NADOs. This suggests that the tests performed by IFs (mainly targeted tests and tests on the highest elite levels) render a larger percentage of AAFs. The Working Group suggests assessing whether target testing is indeed more effective than regular testing in the sense that more positive cases result from such testing. It was beyond the scope of its current mandate to study this subject in depth.

### Prohibited List

38% of responding IFs and 60% of the NADOs report that at least one of the following substances necessitated their drawing specific attention (in time and/or money): beta-2 agonists, corticosteroids, T/E ratio, and (for NADOs) cannabis. These substances require 0.27 and 0.79 FTE of staff time and an unspecified amount and \$39,500 for IFs and NADOs respectively. One third of these respondents commented that the associated extra time and costs, necessary for education and legal fees, could be spent much more efficiently in other areas of their anti-doping programs, for example in their testing programs.

### Cost comparison of various aspects

IFs spend on average 8.9% of their overall anti-doping program budgets on their TUE-systems and NADOs spend 5.5%. NADOs spend 3.9% of their overall anti-doping program budgets on whereabouts systems and 72% on their testing programs. These figures could not be reliably retrieved for IFs.

The average staff times allocated to the TUE system and to the whereabouts and testing programs and to the educational efforts about the prohibited list (the parts of the anti-doping programs that were deemed to be the most important to include in a cost-related analysis) are outlined in table 12. The associated costs besides staff time follow in table 13. The data for urine and blood testing include all aspects of testing, from planning to results management.

Table 12. Average staff time allocated to aspects of anti-doping programs

Parameter	IFs	NADOs
ATUE system	0.72 FTE	1.40 FTE
TUE system	0.25 FTE	0.35 FTE
Whereabouts program	0.72 FTE	1.88 FTE
Urine testing	1.37 FTE	4.40 FTE
Blood testing	0.31 FTE	0.24 FTE
Education on prohibited list	0.80 FTE	1.22 FTE

Table 13. Average real costs besides staff time of aspects of anti-doping programs

Parameter	IFs	NADOs
ATUE system	\$4,250	\$10,500
TUE system	\$4,800	\$6,800
Whereabouts program	\$10,900	\$19,300
Urine and blood testing	\$157,200	\$1,052,450
Education on prohibited list	\$6,800	\$44,000

Most of the resources are allocated to the existing testing programs, as can be expected. This study shows that the real costs (besides staff time) related to testing are so high that the costs associated with other aspects of anti-doping programs are just a fraction of the total budgets, and savings made in these areas, albeit important, may not contribute much to the testing programs that already exist.

The staff time, however, is distributed differently. The testing programs are still the majority of the total, but the other aspects of the anti-doping programs require significant time and efforts as well. Especially if it would be possible to reduce the amount of staff time that is spent on the much criticized ATUE-system, it can be expected that other areas may benefit from the expertise that could be redirected.

It is also striking to see that the TUE and ATUE systems, in total, are less costly and require approximately similar staff time in comparison to the whereabouts system, but they stir up much more discussion.

The figures show that NADOs are able to put more resources into anti-doping in comparison with IFs. This might not be surprising, given their mandate. The only area where NADOs are slightly outperformed is the performance of blood testing. The efforts in this area could be improved.

### **General conclusions**

Beyond the conclusions on the specific subjects described before, the Working Group on Anti-Doping Costs identified also some general conclusions.

First of all, it is clear that costs implications of anti-doping stir up a great deal of emotions. The amount of time that has been put in by stakeholders in answering the questionnaires is proof of their willingness to cooperate with the anti-doping rules and with efforts to improve these. But at times the responses also show some substantial concerns by stakeholders who want to comply with the international rules, but cannot achieve this because of cost constraints and other practical problems. The data suggest that 40-50% of the respondents feel that especially the administrative duties accompanying the ATUE-system and some substances on the prohibited list require them to spend their human and financial resources less than optimally. This large minority asks openly for a critical re-evaluation and, if possible, simplification of the existing rules.

The TUE-system, a whereabouts-program, and a testing program are all necessary elements of an effective anti-doping policy, and thus require costs and efforts. But a large minority of the respondents (approximately 30% of the IFs and 40% of the NADOs) point to the fact that the problems they experience in their daily work with these systems are not limited to costs. They also state that the rules should be reasonable, explainable and practical. At the moment many stakeholders feel that this is not the case, especially in the areas of ATUEs and the obligations they have regarding certain substances on the Prohibited List. They know that not all their wishes can be realized, but it is the firm belief of this Working Group that it is highly advisable to make some adjustments to the current WADP to try to address some of their concerns.

Finally, the Working Group is of the opinion that whilst all efforts to implement advancements in anti-doping regulations are to be supported, the cost implications in so doing need to be carefully considered in the decision-making process.

## **Annex A: The used questionnaires**

There were five questionnaires especially developed for this study. They were preceded by a cover letter, that was signed by the different members of the Working Group representing the different groups of stakeholders. The text of this cover letter was identical for all stakeholders that were addressed. As an example, the cover letter of the laboratory questionnaire is given, followed by the questionnaires themselves.

SENT VIA E-MAIL

Montreal, April 11, 2006

**WADA WORKING GROUP ON ANTI-DOPING COSTS**

Dear Madam, Sir,

With this letter, we ask you – as a major stakeholder in the field of anti-doping – for your cooperation on an important issue. WADA has established a Working Group on Anti-Doping Costs to try and obtain information about the resources invested in anti-doping work and thus provide a basis to review how potential savings can be made in the future. We would like to ask you to fill out a questionnaire that addresses this issue.

We do realize that this request makes demands on your time and capacity, thus generating costs(!). We also realize that recently, you may have received other similar questionnaires on this issue. Nevertheless, we kindly urge upon your cooperation since it is clear that cost-effectiveness is an important and growing issue for all those involved in anti-doping.

Following the founding of the World Anti-Doping Agency in 1999, the international fight against doping in sport strongly intensified. A concrete result of WADA's work is the implementation of various regulations and standards in compliance with the World Anti-Doping Code. This has led to the necessary harmonization of anti-doping policies.

Unquestionably, the rigorous implementation of the Code has been associated with a dimension of cost. Stakeholders have been required to provide more human resources, as well as financial and administrative resources, in order to comply with the World Anti-Doping Programme.

At the same time, cost-effectiveness is an important principle. A sufficient level of insight into the actual costs and benefits of anti-doping regulations is essential to justify and/or adjust them in the future.

These principles of cost-effectiveness and cost benefit analysis formed the basis of a decision of the WADA Executive Committee to establish the Working Group on Anti-Doping Costs. The purpose of this Working Group is to investigate and report on issues regarding financial and human resource commitments/costs associated with implementing anti-doping programs/protocols in compliance with the World Anti-Doping Code.

Within the Working Group, the basic sectors on anti-doping are represented. The composition is as follows:

- Public Authorities: **Peter de Klerk** (Ministry of Health, Welfare and Sport – the Netherlands)
- Sports Movement – IOC: **Patrick Schamasch** (IOC Medical Director)
- Sports Movement - IFs: **Sarah Lewis** (International Ski Federation)

- National Anti-Doping Organisations: **Jeremy Luke** (Canadian Centre for Ethics in Sport – Canada)
- WADA Accredited Laboratories: **Luis Horta** (Doping laboratory - Portugal)
- WADA List or HMR Committee: **Gary Wadler** (New York University School of Medicine – United States)

Essential to our task is the collection of data on significant components of the program that account for actual anti-doping costs. To this purpose, we have developed several questionnaires. Enclosed you will find one or more of these questionnaires. We kindly request you complete the questionnaires and return them to:

Working Group on Anti-Doping Costs  
 c/o NeCeDo, att Olivier de Hon  
 PO Box 5014  
 2900 EA Capelle a/d IJssel  
 The Netherlands  
[Olivier.de.hon@necedo.nl](mailto:Olivier.de.hon@necedo.nl)  
 Fax: +31 10 201 01 59

It would be greatly appreciated if you could return the completed questionnaire by Friday 12th May 2006.

By filling out the questionnaire, you are contributing to a process that, in due course, will benefit all of us. The Working Group on Anti-Doping Costs is composed in a broad and representative way which should ensure widespread support, and the conclusions and recommendations drawn from the completed questionnaires will be presented to the WADA Executive Committee later this year. Thereafter, we will also inform you of our findings.

We hope you will agree to our request. If you have any questions, please feel free to contact any one of the undersigned.

We cordially thank you for your cooperation.

Sincerely,

Peter de Klerk  
 Chair Working Group  
 Tel: + 31 70 340 6372  
 E-mail: [pc.d.klerk@minvws.nl](mailto:pc.d.klerk@minvws.nl)

Luis Horta  
 Tel: +351 21 796 9073  
 E-mail: [Luis.Horta@idesporto.pt](mailto:Luis.Horta@idesporto.pt)

## **Questionnaire to WADA Accredited Laboratories**

WADA launched a Working Group on Anti-Doping Costs with the purpose to investigate and report on issues regarding financial and human resource commitments/costs associated with implementing anti-doping programs/protocols in compliance with the World Anti-Doping Code.

WADA defined the objectives/key activities for the Working Group where are included different items related with the costs of sample analysis in the Accredited Laboratories.

The Working Group on Anti-Doping Costs needs the contribution of all Accredited Laboratories to fulfil the request of WADA concerning the costs related with activities performed exclusively by the Laboratories.

All the information provided by the Accredited Laboratories in this questionnaire will be used exclusively for the purpose of the Working Group on Anti-Doping Costs preserving full confidentiality. The publication by WADA of any data provided by this questionnaire identifying the Accredited Laboratory needs the written approval of the concerned Laboratory.

**1. Data and analysis on the financial/ administrative costs of anti-doping analysis, distinguishing between substances for which analysis needs special investments (eg. EPO, blood sample analysis) and substances which are routinely detected**

**1.1** What are the unit costs in USD for a full screen or confirmation analysis (in competition) with ten working days result reporting from receipt of samples at your laboratory?

"A" Sample screening: \_\_\_\_\_

"A" Sample confirmation: \_\_\_\_\_

"B" Sample: \_\_\_\_\_

**1.2** Comparing the unit costs mentioned in 1.1 with the real costs of the analysis please choose one of the following answers:

\_\_\_ Real costs<sup>1</sup> are higher than the unit costs (estimation % above)

\_\_\_ Real costs are lower than the unit costs (estimation % below)

\_\_\_ Real costs are equal to the unit costs

**1.3** Please estimate the respective contribution (in %) of the following items for the unit costs mentioned in 1.1:

Human resources \_\_\_\_\_ (%)

Equipment amortization \_\_\_\_\_ (%)

Material (reagents, consumables, etc) \_\_\_\_\_ (%)

Administrative costs \_\_\_\_\_ (%)

**1.4** Does your laboratory perform EPO analysis?

\_\_\_ Yes

\_\_\_ No

If the answer was no please go directly to **1.8**.

---

<sup>1</sup> By *Real Costs* we mean how much an analysis costs, independently of subsidies and/or profit.

**1.5** What are the unit costs in USD for an EPO analysis at your Laboratory?

"A" Sample screening: \_\_\_\_\_

"A" Sample confirmation : \_\_\_\_\_

"B" Sample: \_\_\_\_\_

**1.6** Comparing the unit costs mentioned in 1.5 with the real costs of the analysis please choose one of the following answers:

\_\_\_ Real costs are higher than the unit costs (estimation % above)

\_\_\_ Real costs are lower than the unit costs (estimation % below)

\_\_\_ Real costs are equal to the unit costs

**1.7** Please estimate the respective contribution (in %) of the following items for the unit costs mentioned in 1.5:

Human resources \_\_\_\_\_ (%)

Equipment amortization \_\_\_\_\_ (%)

Material (reagents, gel, etc) \_\_\_\_\_ (%)

Administrative costs \_\_\_\_\_ (%)

**1.8** Does your laboratory perform blood sample analysis?

\_\_\_ Yes

\_\_\_ No

If the answer was no please go directly to **2.1**.

**1.9** What are the unit costs in USD for a blood sample analysis at your Laboratory?

"A" Sample screening: \_\_\_\_\_

"A" Sample confirmation: \_\_\_\_\_

"B" Sample: \_\_\_\_\_

**1.10** Please indicate which are the analyses included in the unit costs described in 1.9 (indicate one or more answers):

Hgb, Hct and reticulocytes

Growth Hormone

Synthetic Haemoglobins

Homologous Transfusions

**1.11** Comparing the unit costs mentioned in 1.9 with the real costs of the analysis please choose one of the following answers:

Real costs are higher than the unit costs (estimation % above)

Real costs are lower than the unit costs (estimation % below)

Real costs are equal to the unit costs

**1.12** Please estimate the respective contribution (in %) of the following items for the unit costs mentioned in 1.9:

Human resources \_\_\_\_\_ (%)

Equipment amortization \_\_\_\_\_ (%)

Material (reagents, consumables, etc) \_\_\_\_\_ (%)

Administrative costs \_\_\_\_\_ (%)

## **2. Costs of new analytical methods**

**2.1** Does your laboratory perform IRMS analysis?

Yes

No

If the answer was no please go directly to **2.5**.

**2.2** What are the unit costs in USD for an IRMS analysis at your Laboratory?

"A" Sample screening: \_\_\_\_\_

"A" Sample confirmation: \_\_\_\_\_

"B" Sample: \_\_\_\_\_

**2.3** Comparing the unit costs mentioned in 2.2 with the real costs of the analysis please choose one of the following answers:

Real costs are higher than the unit costs (estimation % above)

Real costs are lower than the unit costs (estimation % below)

Real costs are equal to the unit costs

**2.4** Please estimate the respective contribution (in %) of the following items for the unit costs mentioned in 2.2:

Human resources \_\_\_\_\_ (%)

Equipment amortization \_\_\_\_\_ (%)

Material (reagents, consumables, etc) \_\_\_\_\_ (%)

Administrative costs \_\_\_\_\_ (%)

**2.5** Does your laboratory perform High Sensitive Mass Spectrometry (HSMS) analysis?

Yes

No

If the answer was No please go directly to 2.9.

**2.6** What are the unit costs in USD for an HSMS analysis at your Laboratory?

"A" Sample screening: \_\_\_\_\_

"A" Sample confirmation: \_\_\_\_\_

"B" Sample: \_\_\_\_\_

**2.7** Comparing the unit costs mentioned in 2.6 with the real costs of the analysis please choose one of the following answers:

Real costs are higher than the unit costs (estimation % above)

Real costs are lower than the unit costs (estimation % below)

Real costs are equal to the unit costs

**2.8** Please estimate the respective contribution (in %) of the following items for the unit costs mentioned in 2.6:

Human resources \_\_\_\_ (%)

Equipment amortization \_\_\_\_ (%)

Material (reagents, consumables, etc) \_\_\_\_ (%)

Administrative costs \_\_\_\_ (%)

**2.9** Do you think that an adequate batching will reduce the costs of the anti-doping analysis?

\_\_\_ Yes

\_\_\_ No

**2.10** Please provide the designation of your Laboratory and your name

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The questionnaire finishes here. Thank you!

## Questionnaire on Storage of Samples – 4 Years

*Taking into consideration the amount of samples you analyze every year, and your estimation for the next few years, what would be your estimate of the costs (in USD) if you were required to store such samples for 4 years.*

### 1. Set-Up Costs

- 1.1 Estimate number of samples stored for 4 years \_\_\_\_\_
- 1.2 If you need to build extra capacity for storage, what would be the estimated construction costs? \_\_\_\_\_
- 1.3 What would be the estimated cost of purchasing freezers? \_\_\_\_\_
- 1.4 What would be the estimated cost of purchasing a generator? \_\_\_\_\_

### 2. Maintenance and Recurring Costs

- 2.1 If you do not build or buy extra capacity, but decide to rent extra space and/or freezers, what would be the approximate rental fees per year? \_\_\_\_\_
- 2.2 What would be the transportation costs between the laboratory and the storage facility per year? \_\_\_\_\_
- 2.3 What would be the maintenance costs per year? \_\_\_\_\_
- 2.4 What would be the energy costs per year? \_\_\_\_\_
- 2.5 What would be the sample integrity costs per year (security of facility and/or freezers, control of appropriate temperature of freezers with alarm, etc)? \_\_\_\_\_
- 2.6 What would be the human resources costs per year? \_\_\_\_\_

(Note added in October 2006: similar questions were asked about a possible requirement for eight years of storage of samples)

## Questionnaire to National Anti-Doping Organizations

WADA has set-up a Working Group on Anti-Doping Costs with the purpose of investigating and reporting on issues regarding financial and human resource commitments/costs associated with implementing anti-doping programs/protocols in compliance with the World Anti-Doping Code.

WADA defined the objectives/key activities for the Working Group, one of which is to provide an analysis on the financial and administrative costs of Therapeutic Use Exemptions.

In order to try and assess the overall situation, the Working Group needs the contribution of all National Anti-Doping Organizations and International Sport Federations to fulfill the request of WADA concerning the provision of information about costs related with Abbreviated TUES and standard TUES.

All the information provided by National Anti-Doping Organizations and International Sport Federations in this questionnaire will be used exclusively for the purpose of the Working Group on Anti-Doping Costs, preserving full confidentiality.

We sincerely hope that the Working Group can assist in providing WADA with valuable information which may ultimately help find ways in which the costs can be controlled.

Whilst we realize that you have already recently received a similar questionnaire that was sent to you through GAISF, the information requested in this questionnaire is different, and although quite detailed, we sincerely hope that you can take the time and trouble to provide as much of the information as possible.

Many thanks!

(Note added in October 2006: a similar letter was sent to IFs)

## **ATUE SURVEY**

All figures should be according to the period 1 January 2005, to 31 December 2005. When monetary costs are requested, the currency shall be USD.

<b>Name of Organization</b>	
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1. Do you outsource the administration of ATUE applications or are they managed in-house?

Outsourced		In-house	
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2. Estimate the number of ATUEs you processed in 2005

No. of ATUEs for Glucocorticosteroids	
No. of ATUEs for Beta 2 Agonists	
No. of ATUEs for Glucocorticosteroids and Beta 2 Agonists	
<b>Total No. of ATUEs</b>	

3. Estimate the total amount of staff time required to deal with ATUEs. This would include receiving ATUEs, approval process, issuing certificates, follow up with athletes/doctors, information transfer to WADA etc (e.g. 1 full-time position, 0.5 of a full-time position, etc.)

Staff time	
------------	--

4. Estimate the total costs (not including costs related to staff time) required for processing ATUEs (e.g. costs related to fax machine, courier, database systems, etc.)

USD	
-----	--

5. Estimate the total staff time required in supporting the ATUE system. This does not include staff time expressed in question 3. As an example, staff time supporting the system might include explaining the TUE process to athletes, developing educational brochures and web-based material, responding to telephone / email enquiries etc. (e.g. 1 full-time position, 0.5 of a full-time position, etc.)

Estimated ATUE support staff time	
-----------------------------------	--

6. Estimate the total costs (not including costs related to staff time and separate from those costs outlined in question 3) in USD in supporting the Abbreviated TUE system (e.g. costs related to educational tools, presentations to athletes, etc).

USD	
-----	--

**STANDARD TUE SURVEY**

7. Do you outsource the administration of standard TUE applications or are they managed in-house?

Outsourced		In-house	
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8. Estimate the number of standard TUEs you processed in 2005. If readily available, please provide the substances for which the TUEs were sought.

<i>No. of STUEs</i>	<i>Substance</i>	<i>No. of STUEs</i>	<i>Substance</i>	<i>No. of STUEs</i>	<i>Substance</i>

7. Estimate the total amount of staff time (not including your TUE Committee's time) required in processing Standard TUE's (e.g. one full-time position, 0.5 of a full-time position).

Staff time	
------------	--

8. Estimate the total cost (not including costs related to staff time) in dealing with Standard TUEs. (e.g. costs related to fax machine, courier, database systems, etc.)

USD	
-----	--

9. Estimate the **total** amount of TUE Committee time required to deal with Standard TUEs on a per case basis. This would include the TUE Committee reviewing the applications, requesting more information as appropriate and making a determination. (e.g. on average one hour per case, two hours per case, etc.)

TUEC time per case	
--------------------	--

10. Estimate the total cost of your TUE Committee's time required in dealing with Standard TUEs on a per case basis. (e.g. on average, what is the cost for your TUE Committee to review one case).

USD per case	
--------------	--

**GENERAL**

11. Is the system you have developed for handling TUEs satisfactory? Record Yes or No. If No, why is it unsatisfactory?

--

12. Are you thinking of further developing the system? Record Yes or No. If Yes, do you intend to use ADAMS.?

--

13. If you are planning to further develop your TUE system without having recourse to ADAMS, estimate the total cost for the further development of the system

USD	
-----	--

14. If you are planning further development of your TUE system, estimate the total staff time for the further development of the system in hours.

Number of hours	
-----------------	--

15. Estimate the total number of adverse analytical findings in 2005 for which the athlete had a TUE or an ATUE . (For example, in 2005 we had 10 adverse analytical findings for which the athlete had previously filed an appropriate TUE)

No. of Adverse Analytical Findings for which the Athlete had a TUE	
No. of Adverse Analytical Findings for which the athlete had an ATUE	

16. What percentage of your staff working on anti-doping matters are designated to both the ATUE/ TUE system? (For example 0.25 of my 1 person staff (25%) are devoted to managing TUEs)

Percentage of Total Staff	
---------------------------	--

17. What percentage of your overall anti-doping program budget is designated to both the ATUE/ TUE system?

Percentage of Total Budget	
----------------------------	--



**Athlete Whereabouts Program Survey**

All figures should be according to the period 1 January 2005, to 31 December 2005.

<b>Name of Organization</b>	
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This survey relates to the financial and administrative costs of an Athlete Whereabouts Program, including the collection and monitoring of this information along with educating athletes about their requirements to submit this information.

1. Does your organization have an athlete whereabouts program? Record Yes or No

Athlete whereabouts program?	
------------------------------	--

***Athlete Whereabouts – Collection and Monitoring of Information***

2. How many athletes are included in your registered testing pool and therefore required to submit regular whereabouts information?

No. of athletes	
-----------------	--

3. Estimate the total amount of staff time required to administer your athlete whereabouts program in the below areas. (e.g collection of whereabouts information – one full-time staff member; monitoring of whereabouts information - .5 staff member).

	Staff Time
Collection of whereabouts information	
Monitoring of whereabouts information	
Follow-up with athletes who “fail to submit whereabouts information”	
Processing of “missed tests” for athletes who cannot be found at the location listed on their whereabouts form	
Other: Please specify (e.g. whereabouts hotline)	
<b>Total Staff Time</b>	

4. Estimate the hard cost (not including staff time) required to administer your athlete whereabouts program in the below areas. Also, please indicate whether this dollar value reflects initial start-up costs or annual ongoing costs.

	Cost (US Dollars)	Start-Up or Ongoing Cost
Collection of Information (including documentation design)		
Monitoring of Information (including database design and management)		
Follow-up with athletes who "fail to submit whereabouts information"		
Processing of "missed tests" for athletes who cannot be found at the location listed on their whereabouts form		
Other: Please specify (e.g. whereabouts hotline)		
<b>Total Costs</b>		

***Athlete Whereabouts - Education***

5. Estimate the total amount of staff time required to deal with education for athletes and other stakeholders regarding your athlete whereabouts program. This would include workshops/seminars/information booklets for athletes and national sporting organizations (informing them of their requirement to submit whereabouts information and ways to submit) and responding to enquiries (e.g. 1 full-time position, 0.5 of a full-time position etc).

Staff time in athlete whereabouts education	
---	--

6. Estimate the hard costs (not including staff time) related to education for athletes and other stakeholders regarding your athlete whereabouts program. This would include costs associated with workshops/seminars, education pamphlets and booklets, websites, etc. Also, please indicate whether this dollar value reflects start-up costs or ongoing costs.

Total Costs in US Dollars		Start-Up or Ongoing Costs	
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**General**

7. Is the current system you have for managing athlete whereabouts information (including athletes submitting forms, updates on information, managing compliance etc) satisfactory? Record Yes or No. If No, why is this unsatisfactory?

--

8. Are you thinking of further developing the system? Record yes or No. If Yes, what further developments are planned?

--

9. If you are planning further development on your system for managing whereabouts information, estimate the total staff time (in hours) for the further development of the system.

Number of hours	
-----------------	--

10. If you are planning further development of your athlete whereabouts system, estimate the total hard cost (not including staff time) for the further development of the system.

Total Cost in US Dollars	
--------------------------	--

11. What percentage of your overall staff working on anti-doping matters is designated to the athlete whereabouts program? (For example 0.25 of my 1 person staff (20%) are devoted to athlete whereabouts)

Percentage of total staff	
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12. What percentage of your overall anti-doping program budget is designated to your athlete whereabouts program?

Percentage of total budget	
----------------------------	--



**Testing Program Survey**

**All figures should be according to the period 1 January 2005, to 31 December 2005.**

<b>Name of Organization</b>	
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This survey relates to the financial and administrative costs of a Testing Program (for both blood and urine samples) including sample collection and results management costs.

***Urine/Blood Sample Collection:***

1. How many urine tests were collected by your organization in 2005? This number should reflect all urine tests collected by your organization.

No. of urine tests	
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2. How many blood tests/screens were collected by your organization in 2005? This number should reflect all blood tests/screens collected by your organization.

No. of blood tests / screens	
------------------------------	--

3. Estimate the total amount of staff time required in each of the below areas to administer your testing program related to the collection of urine samples. If applicable, estimate the additional staff time required in each of the below areas to administer your blood testing program. (e.g. training and managing of sample collection personnel – 1 fulltime position for urine testing and .5 of a position for blood testing; test planning and coordination – 2 full-time positions for urine testing and 1 full-time position for blood testing.)

	Staff Time (Urine)	Staff Time (Blood)
Training and managing of sample collection personnel		
Test planning and coordination		
Equipment Inventory		
Management of database systems and filing systems		
Other – please specify:		
<b>Total staff time</b>		

4. Estimate the hard costs (not including staff time) required in each of the below areas for your urine testing program. If applicable, estimate the additional hard costs (not including staff time) required in each of the below areas for your blood testing program. Also, please indicate whether this dollar value reflects initial start-up costs or annual ongoing costs.

	Costs (\$US) (Urine)	Costs (\$US) (Blood)	Start-up or Ongoing Cost
Training and managing of sample collection personnel			
Test Planning and Coordination (including sample collection costs and travel costs)			
Equipment inventory (including courier of samples and supplies)			
Database and filing systems			
Insurance			
Laboratory Analysis Costs for total tests conducted in 2005			
Other – please specify:			

**Results Management**

5. Please indicate the total number of adverse analytical findings processed by your organization in 2005.

No. of adverse analytical findings	
------------------------------------	--

6. Estimate the total amount of staff time required to deal with results management for both urine and if applicable, blood tests. This would include processing negative laboratory results, laboratory follow-up, investigations, hearings and appeals. (e.g. 1 full-time position)

Results management staff time – urine	
Results management staff time – blood	

7. Estimate the hard costs (not including staff time) in dealing with results management for both urine and if applicable, blood tests. This would include costs related to database systems, fax, email, legal fees and documentation.

Results management costs – urine	
Results management costs – blood	

**General**

8. What percentage of your staff working on anti-doping matters, are designated to urine and if applicable, blood sample collection and results management? (e.g. 4 of my 8 person staff (50%) are designated to urine and blood sample collection).

Percentage of total staff – urine sample collection and results management	
Percentage of total staff – blood sample collection and results management	

9. What percentage of your overall anti-doping program budget is designated to urine and if applicable, blood sample collection and results management?

Percentage of total budget – urine sample collection and results management	
Percentage of total budget – blood sample collection and results management	

10. Please provide any additional comments:


## Prohibited List Survey

All figures should be according to the period 1 January 2005, to 31 December 2005.

<b>Name of Organization</b>	
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This survey relates to the financial and administrative costs associated with the WADA Prohibited List including education and costs associated with certain specific substances.

### ***WADA Prohibited List - Education***

1. Estimate the total staff time for the following areas required to educate athletes, and athlete support personnel, about the Prohibited List. (e.g. substance inquiries – 2 full-time staff, education materials - .5 full-time staff).

	Staff Time
Substance Inquiries: (Phone, Email, Fax, Databases)	
Education materials: (booklets, pamphlets)	
Website	
Presentations to athletes/stakeholders on Prohibited List	
Other: please specify	
<b>Total staff-time</b>	

2. Estimate the real costs (aside from staff time) for the following items in terms of educating athletes, and athlete support personnel, regarding the WADA Prohibited List. Please also indicate whether this dollar value reflects the initial start-up or annual ongoing costs.

	Cost (US Dollars)	Start-Up or Ongoing Cost
Substance Inquiries: (Phone, Email, Fax, Databases)		
Education materials: (booklets, pamphlets)		
Website		
Presentations to athletes/stakeholders on Prohibited List		
Other: please specify		
<b>Total real costs</b>		

**WADA Prohibited List for 2005 – Certain Substances**

3. In your view, were there certain substances on the WADA Prohibited List in 2005 that resulted in significantly more staff-time to your organization? Examples might include staff-time related to a significant number of anti-doping rule violations, specific education campaigns, substances that require TUEs, etc. Please indicate the substance, reason for the additional staff-time, and the amount of staff-time required.

Substance	Reason for Additional Staff-time	Amount of Staff-time

4. In your view, were there certain substances on the WADA Prohibited List in 2005 that resulted in significantly more real costs (not including staff-time) to your organization? Examples might include costs related to a significant number of anti-doping rule violations, specific education campaigns, increased laboratory fees, etc. Please indicate the substance, reason for the additional costs, and the specific cost in US dollars.

Substance	Reason for Significant Costs	Costs (US Dollars)

5. Please add any additional comments:


## **Annex B: List of used abbreviations**

AAF	Adverse analytical finding
ADAMS	Anti-doping administration & management system
ATUE	Abbreviated therapeutic use exemption
EPO	Erythropoietin
FTE	Full time equivalent
HSMS	High sensitive mass spectrometry
IDTM	International doping tests & management
IF	International federation
IOC	International Olympic committee
IPC	International paralympic committee
IRMS	Isotope ratio mass spectrometry
NADO	National anti-doping organization
NF	National federation
TUE	Therapeutic use exemption
US\$	United states dollar
WAADS	World association of anti-doping scientists
WADA	World anti-doping agency
WADC	World anti-doping code
WADP	World anti-doping program