WORLD ANTI-DOPING AGENCY

World Anti-Doping Program

GUIDELINES FOR BLOOD SAMPLE COLLECTION

Version 2.2

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1. Objective

This guideline expands upon the concepts in the *International Standard* for Testing and details the recommended process for the collection of blood for doping control purposes in accordance with Article 2.1 of the *Code* (Presence) and Article 2.2 (Use), both in and out-of-competition. The guideline therefore includes information on planning and preparation, sample collection and post-test processing and administration to collect and prepare samples for transport and for the analysis of prohibited substances and methods (e.g. detection of Blood Transfusion, hGH, CERA and HBOCs) as well as for the longitudinal monitoring of *Athlete* biological variables in accordance with the *Athlete Biological Passport* Guidelines.

These guidelines also provide practical advice on the integration of *Athlete* Biological Passport Testing into 'traditional' testing activities. For detailed guidance on the implementation of an *Athlete* Biological Passport program, refer to the WADA *Athlete Biological Passport Operating Guidelines and Compilation of Mandatory Annexes*.

With the exception of those mandatory areas which are part of the World Anti-Doping Program, the processes outlined in this document are not mandatory, but are aimed at assisting *Anti-Doping Organization*s in the development of systems and protocols for Blood Sample collection in order to support intelligent and effective testing programs. The method of sample collection may vary from these recommendations in some circumstances; however, minimum standards should be applied to ensure that the integrity of the sample is maintained at all times.

When collecting blood for doping control purposes, the protection of the *Athlete* and Sample Collection Personnel is paramount. The process must be carried out by experienced professionals who possess qualifications in phlebotomy recognized by the relevant public authorities, and the highest standards of hygiene and safety must be maintained at all times.

2. Scope

This guideline begins with the arrival of Sample Collection Personnel at the Blood Collection Facility, and ends with the hand-over of the Blood Sample(s) to the courier or the WADA accredited (or WADA-approved) laboratory.

3. Definitions

3.1 Defined terms from the 2009 Code

Anti-Doping Organization (ADO)*:* A Signatory that is responsible for adopting rules, for initiating, implementing or enforcing any part of the doping control process. This includes, for example, the International Olympic Committee, the International Paralympic Committee, other Major Event Organizations that conduct

testing at their events, WADA, International Federations, and National *Anti-Doping Organizations*.

Athlete: Any *Person* who participates in sport at the international level (as defined by each International Federation), the national level (as defined by each *National Anti-Doping Organization,* including but not limited to those *Persons* in its *Registered Testing Pool*), and any other competitor in sport who is otherwise subject to the jurisdiction of any *Signatory* or other sports organization accepting the *Code*. All provisions of the *Code*, including, for example, *Testing* and therapeutic use exemptions, must be applied to international- and national-level competitors. Some *National Anti-Doping Organizations* may elect to test and apply anti-doping rules to recreational-level or masters competitors who are not current or potential national caliber competitors. *National Anti-Doping Organizations* are not required, however, to apply all aspects of the *Code* to such *Persons.* Specific national rules may be established for Doping Control for non-international-level or non-national-level competitors without being in conflict with the *Code.* Thus, a country could elect to test recreational-level competitors but not require therapeutic use exemptions or whereabouts information. In the same manner, a *Major Event Organization* holding an *Event* only for masters-level competitors could elect to test the competitors but not require advance therapeutic use exemptions or whereabouts information. For purposes of Article 2.8 (Administration or *Attempted* Administration) and for purposes of anti-doping information and education, any *Person* who participates in sport under the authority of any *Signatory*, government, or other sports organization accepting the *Code* is an *Athlete*.

[Comment: This definition makes it clear that all international and national-caliber athletes are subject to the anti-doping rules of the Code, with the precise definitions of international and national- level sport to be set forth in the anti-doping rules of the International Federations and National Anti-Doping Organizations, respectively. At the national level, anti-doping rules adopted pursuant to the Code shall apply, at a minimum, to all persons on national teams and all persons qualified to compete in any national championship in any sport. That does not mean, however, that all such Athletes must be included in a National Anti-Doping Organization's Registered Testing Pool. The definition also allows each National Anti-Doping Organization, if it chooses to do so, to expand its anti-doping program beyond national-caliber athletes to competitors at lower levels of competition. Competitors at all levels of competition should receive the benefit of anti-doping information and education.]

3.2 Defined terms from the IST, ISL and/or Blood Collection Guidelines

***Athlete* Biological Passport:** The method of gathering and evaluating data described in this document including the Technical Documents of the *International Standards* for *Testing* and Laboratories.

***Athlete* Representative**: A person designated by the *Athlete* to assist with the verification of the sample collection procedure (not including the passing of the urine sample). This person may be a member of the *Athlete*'s support personnel, such as a coach or team doctor, a family member, or other.

Blood Collection Facility: The place where the Blood Sample is collected. This may differ from the doping control station where urine samples are collected, or may be a separate, dedicated area of the doping control station.

Blood Collection Procedure: The procedure for taking a Blood Sample from an *Athlete*, from the *Athlete*'s arrival at the Blood Collection Facility to the *Athlete*'s departure from the Blood Collection Facility.

Butterfly Needle: A small needle with two plastic wings attached which are squeezed together to form a tab used to manipulate the needle. A long 6-12" plastic tubing is attached to offer better manipulation.

Blood Collection Officer (BCO): An official who is qualified to and has been authorized by the *ADO* to collect a Blood Sample from an *Athlete*.

Blood Sample: An aliquot of whole blood, plasma or serum appropriately collected to perform one or more Laboratory tests.

Chaperone: An official who is trained and authorized by the *ADO* to carry out specific duties including notification of the *Athlete* selected for sample collection, accompanying and observing the *Athlete* until arrival at the doping control station, (or Blood Collection Facility) and/or witnessing and verifying the provision of the sample where the training qualifies him/her to do so.

Doping Control Officer (DCO): An official who has been trained and authorized by the *ADO* with delegated responsibility for the on-site management of a Sample Collection Session.

Laboratory(ies): *WADA*-accredited Laboratory(ies) or otherwise approved by WADA where applicable applying test methods and processes to provide evidentiary data for the detection of *Prohibited Substances, Methods* and *Markers* on the *Prohibited List*, and if applicable, quantification of a Threshold Substance, in urine and other biological *Sample*s in the context of anti-doping activities.

Sample Collection Personnel: a collective term for qualified officials authorized by the *ADO* who may carry out or assist with duties during the sample collection session.

Venipuncture: The process of collecting a sample of blood from an *Athlete*'s vein.

4. Responsibility

4.1 Doping Control Officer (DCO)

(One lead/senior DCO shall take responsibility for sample collection services. A DCO may also perform the duties of a Blood Collection Officer, only if qualified to do so).

- Organize and brief Sample Collection Personnel.
- Ensure that Chaperones are trained in carrying out relevant activities.
- Liaise with sport representatives, if relevant.
- Organize equipment, including all relevant documentation.
- Assess and organize the facilities.
- Arrange or perform notification and escorting of *Athlete*s.
- Ensure that the *Athlete*'s rights and responsibilities are explained.
- Explain, or arrange explanation of, the process for Blood Sample collection to *Athlete*s and *Athlete* Representatives, as necessary.
- Collect and/or oversee the collection of the sample.
- Oversee the post-collection process.
- Co-ordinate collection of accompanying urine sample, if required.
- Complete, or arrange completion of, and verify the relevant documentation.
- Verify the chain of custody.
- Organize courier services, if necessary, or on-site screening of blood.

4.2 Blood Collection Officer (BCO)

- Possess qualifications in phlebotomy recognized by the relevant public authorities, have experience in sample collection, and be approved by the authorized collection agency to conduct the Blood Collection Procedure.
- Answer relevant questions from *Athlete*s about the procedure.
- Prepare the *Athlete*, collect a Blood Sample and advise the *Athlete* on aftercare procedures.
- Dispose of the blood collection equipment in an appropriate manner.
- Carry out first aid on the *Athlete* if required.
- Verify the collection procedure and sign the relevant documentation.

4.3 Chaperone

- Notify the *Athlete* in person as instructed by the DCO.
- Escort the *Athlete* from notification until arrival at the Blood Collection Facility.

[4.3 Comment: A Chaperone may have additional duties for urine sample collection – the duties above relates to the collection of blood only.]

4.4 Athlete

- Request the presence of an *Athlete* Representative, if desired.
- Report for doping control as soon as possible, and within the specified time frame.
- Be escorted from notification to sample provision.
- Be responsible for any food or beverage consumed prior to sample provision.
- Be familiar with the sample collection process.
- Be responsible at all times for his/her sample (s) from provision to sealing.
- Observe the procedure and ensure there are no irregularities.

- Declare any blood transfusions on the doping control documentation.
- Respond to questions related to the *Athlete Biological Passport* such as use of hypoxic devices and training at altitude, if applicable.
- Provide a TUE certificate, if applicable.
- Make comments relating to the sample collection process on the doping control documentation, if applicable.
- Sign documentation as requested by the DCO.

4.5 Athlete Representative

(presence optional, at *Athlete*'s request)

- Accompany the *Athlete* during notification.
- Accompany the *Athlete* to the Blood Collection Facility.
- Be present during Blood Collection Procedures and assist in the selection of equipment and the sealing process where asked to do so by the *Athlete*.
- Assist the *Athlete* in the completion of paperwork where asked to do so by the *Athlete*.
- Be familiar with the sample collection process.
- Observe the sample collection process and ensure there are no irregularities.
- Sign documentation as requested by the DCO.

5. Preparation for the Blood Sample Collection Session

Procedures involving blood shall be consistent with relevant principles of internationally recognized standard precautions in health care settings.

The protocol for the Blood Sample collection session is divided into the following steps.

5.1 Prepare the necessary equipment

5.1.1 The DCO shall ensure that equipment and supplies are adequate for the Sample Collection Session. The type of equipment may vary but, as a guideline, the following will be made available:

- Sterile needles
- Butterfly Needles
- Disposable plastic syringes
- Appropriate Vacutainer collection tubes to draw a predetermined volume of blood (these may include serum separator tubes or and/or EDTA (anti-coagulant) tubes, as required).
- Sterile disinfectant pads
- Gloves providing barrier protection
- Tourniquets
- A disposal container for bio-hazardous waste

- A bio-hazard spill kit
- Adhesive bandage and gauze
- A cool-box
- Sealed, tamper evident Sample transport kits
- Secure transport bags and seals
- Transport temperature monitoring device
- All doping control documentation, including doping control forms, *Athlete* notification forms, supplementary report forms, chain of custody forms, etc.

[*5.1.1 Comment: Sufficient Sample Collection Equipment shall be made available to ensure that at all times an Athlete selected for Testing has a choice of at least three Blood Sample collection kits and two Sample transport kits. Furthermore sufficient Doping Control documentation should be supplied based upon the number of tests being conducted.]*

5.1.2 Any sample collection equipment systems used shall meet the following minimum criteria:

- Have a unique numbering system incorporated into all containers used to identify the Sample.
- Have a sealing system that is tamper-evident.
- Ensure the identity of the *Athlete* is not evident from the equipment itself.
- Ensure that all equipment is clean and sealed prior to use.

5.2 Brief personnel on roles and responsibilities

5.2.1 The DCO should brief the Sample Collection Personnel on their roles and responsibilities prior to or upon arrival at the Blood Collection Facility. This will include *Athlete* notification, chaperoning, Blood Sample collection (including urine sample collection if applicable).

[5.2.1 Comment: See WADA Guidelines for Urine Sample Collection - Appendix 1 Chaperone Training Guidelines and Sample Collection Personnel: Recruitment, Training, Accreditation and Reaccreditation Guideline Article 7.]

5.3 Assess the facilities

5.3.1 The minimum requirements to be met to enable use of a facility as a Blood Collection Facility are privacy and cleanliness. The requirements are necessarily more stringent than for a doping control station for the purpose of urine sample collection. If the facility does not meet the minimum requirements, the DCO may decide not to proceed with testing. The reasons for such a decision must be documented.

[5.3.1 Comment: ADOs may wish to request DCOs to include a sketch of the Doping Control Station in their DCO report or provide a digital picture.]

5.3.2 The Blood Collection Facility should ideally meet the following criteria:

- Be solely reserved for Doping Control purposes;
- Maintain *Athlete* privacy and confidentiality;
- Provide a high standard of cleanliness;
- Be well-lit and well-ventilated;
- Be accessible only to authorized personnel;
- Be secure enough to store sample collection equipment;
- Contain a table and chairs for administration and completion of paperwork;
- Contain a comfortable chair or bed for sample provision and any after-care that may be required;
- Contain a refrigerator or cool-box;
- Be large enough to accommodate the number of *Athlete*s, *Athlete* Representative and Sample Collection Personnel who will occupy the area;
- Be suitably located in relation to the field of play or other location where *Athlete*s will be notified.

[5.3.2 Comment 1: Although the term Blood Collection Facility is used, for out-of-competition testing this facility might be an Athlete's home or a hotel room, rather than an officially designated facility for doping control, as long as it meets the minimum criteria in 5.3.1. For In-Competition testing the Blood Collection Facility may be located adjacent to, or in the same suite of rooms as the doping control station where urine sample collection is to take place.]

5.3.3 Access to the Blood Collection Facility shall be restricted to the *Athlete* providing the sample, the *Athlete* Representative, an interpreter if required, and Sample Collection Personnel, unless otherwise agreed by the DCO. Additional personnel requesting access may include an IF representative, an *ADO* observer, an auditor or a WADA Independent Observer. These personnel should have adequate authorization available for the DCO to review upon arrival at the Blood Collection Facility.

5.3.4 The DCO may wish to assign a member of the Sample Collection Personnel to monitor access to the Blood Collection Facility and ensure that only authorized persons are admitted.

5.3.5 Members of the media must not be allowed to enter the Blood Collection Facility at any time.

5.4 Athlete selection

5.4.1 The DCO will select *Athletes* according to the selection policy indicated by the *ADO*. This may include one or all of the following: target testing (named *Athletes* or categories), finishing position and random selection.

[5.4.1 Comment: Selections/selection methods made by the ADO should be clearly communicated to the DCO. For example, detailing selections in an ADAMS mission order.]

5.4.2 Following the selection of the *Athlete*, the DCO shall ensure that selection decisions are disclosed on a need-to-know basis only to ensure that testing is *No-Advance Notice*.

6. *Athlete* Notification and Chaperoning

6.1 Athlete notification

6.1.1 The DCO/Chaperone shall establish the location of the selected *Athlete*, and plan the approach and timing of notification, taking into account any specific circumstances such as the competition/training schedule, and such that the notification will be carried out as *No-Advance-Notice* notification.

6.1.2 The DCO/Chaperone shall identify him/herself and shall show the *Athlete* the official authorization documentation that is provided by the *ADO* which has granted the authority to test. Additional photo identification proving affiliation to the authorized sample collection authority shall also be provided, if this authority is not the *ADO* which authorized the test. DCO identification documents shall include name, photograph, and the documents' expiry date. Chaperones do not require documentation identifying them by name or photograph but as a minimum shall produce official authorization documentation that is provided by the *ADO*, such as an Authorization Letter.

6.1.3 The DCO/Chaperone shall, at a minimum, verbally confirm the *Athlete's* identity. If the *Athlete* is carrying photo ID, this may be checked at this stage. An *Athlete's* inability to provide photo ID shall not invalidate a test. Formal identification can be established by starting number, accreditation, third party witness, or other viable method as established by the *ADO*. If the *Athlete*'s identity is unknown and cannot be established in any manner, the DCO must contact the *ADO* for further instructions.

6.1.4 The DCO/Chaperone should show the *Athlete* the notification form (which may be part of the *Doping Control* form), and shall then notify the *Athlete* of the following:

- That the *Athlete* is required to undergo a *Sample* collection;
- The authority under which *Sample* collection is to be conducted (i.e. the *Testing* Authority);
- That the type of *Sample* Collection will be blood (and urine if testing is combined with urine Sample Collection) and any conditions that need to be adhered to prior to *Sample* collection, including the requirement for the *Athlete* to provide their *Sample* in direct observation of a DCO/Chaperone;
- The *Athlete*'s rights, including the right to:

- Have an *Athlete* Representative present throughout the course of the entire *Sample* collection process (other than *Sample* provision) and if available, an interpreter;
- Ask for additional information about the *Sample* collection process;
- Request a delay in reporting to the Blood Collection Facility for valid reasons (see 6.1.10 for what constitutes valid reasons);
- Request modifications to the *Sample* collection procedure if the *Athlete* has a disability (see *Guidelines for Urine Sample Collection* – Section 9);

- The *Athlete*'s responsibilities, including the requirement to:
  - Remain within direct observation of the DCO/Chaperone at all times from the point of notification by the DCO/Chaperone until the completion of the *Sample* collection process;
  - Produce appropriate and valid identification in accordance with 6.1.3.
  - Comply with the *Sample* collection procedures (and the *Athlete* should be advised of the possible consequences of Failure to Comply)
  - Report immediately for a test, unless there are valid reasons for a delay, as determined by the DCO;
- The location of the Blood Collection Facility;
- That should the *Athlete* choose to consume food or fluids prior to providing a *Sample*, he/she does so at his/her own risk.

[6.1.4 Comment: (i) The Testing Authority is the Anti-Doping Organization that has initiated and authorized the Sample Collection Session.]

6.1.5 The DCO/Chaperone should encourage the presence of a third party during the notification process where the *Athlete* is a *Minor*, it is required by an *Athlete*'s disability or in situations where an interpreter is required.

6.1.6 If a selected *Athlete* is not located based on available information, the DCO shall attempt to locate the *Athlete* by other means, but ensure that *No-Advance-Notice* notification is used as a notification method. The DCO shall notify the *ADO* for further instructions if the *Athlete* is not located.

[6.1.6 Comment: In the event that a DCO is unable to locate an Athlete based on the available information, the DCO should in most cases (for e.g. for In-Competition Testing) attempt to locate the Athlete by other means. If the DCO is attempting to locate the Athlete for an Out-of-Competition test, during a specific 60-minute time slot as designated in the Athlete's Whereabouts Filing, the DCO shall follow the procedures set out in the International Standard for Testing 11.4.3 (b) & (c). Under no circumstances shall the DCO/Chaperone make a telephone call to the Athlete to locate them.]

6.1.7 The *Athlete* shall read and sign the *Athlete* notification form or doping control form as directed by the DCO/Chaperone.

6.1.8 If an *Athlete* copy of the official notification record exists, this will be given to the *Athlete*.

6.1.9 If the *Athlete* refuses to sign that he/she has been notified, or evades notification, the DCO/Chaperone shall make all reasonable attempts to

persuade the *Athlete* to comply, including informing the *Athlete* again of the consequences of refusing or failing to comply. If the *Athlete* continues to refuse, the DCO/Chaperone must report this to the DCO immediately, and the DCO shall attempt to notify the *Athlete*. If the *Athlete* still refuses to be notified, the DCO shall document the facts, including the reasons for refusal given by the *Athlete.* The DCO shall endeavor to obtain witness signatures to confirm the *Athlete's* refusal, and shall contact the *ADO* for further instructions as soon as possible.

6.1.10 The DCO may at their discretion consider any reasonable third party requirement or any request by the *Athlete* for permission to delay reporting to the Doping Control Station following acknowledgment and acceptance of notification; and/or to leave the Doping Control Station temporarily after arrival. Such permission shall only be granted if the *Athlete* can be continuously chaperoned and kept under direct observation during the delay and if the request relates to the following activities:

For *In-Competition Testing*:

- Participation in a victory ceremony;
- Fulfillment of media commitments;
- Competing in further *Competition*s;
- Performing a warm down;
- Obtaining necessary medical treatment;
- Locating a representative and/or interpreter;
- Obtaining photo identification;
- Any other exceptional circumstances which may be justified, and which shall be documented.

For *Out-of-Competition Testing*:

- Locating an *Athlete* Representative;
- Completing a training session;
- Receiving necessary medical treatment;
- Obtaining photo identification;
- Any other exceptional circumstances which may be justified, and which shall be documented.

6.1.11 The DCO shall document any reasons for delay in reporting to the Doping Control Station and/or reasons for leaving the Doping Control Station that may require further investigation by the *ADO*. Any failure of the *Athlete* to remain under constant observation shall also be recorded.

6.2 Chaperoning the Athlete to the Blood Collection Facility.

6.2.1 The DCO/Chaperone shall ensure that the *Athlete* is escorted from the place of notification to the Blood Collection Facility under constant supervision.

[6.2.1 Comment: The DCO should take into consideration relevant sport-specific and venue specific factors that could affect the chaperoning process, for example sports in which

Athletes often compete in more than one Event potentially prolonging the chaperoning process.]

6.2.2 The DCO/Chaperone cannot prevent the *Athlete* from eating or drinking products of their choice, but should recommend that the *Athlete* chooses from a selection of individually sealed, non-alcoholic beverages in order to hydrate. The DCO/Chaperone should not handle food or drink items for the *Athlete*.

6.2.3 The DCO/Chaperone shall escort the *Athlete* at all times until the sample collection procedures have been completed, or shall ensure that another DCO/Chaperone has taken over escorting the *Athlete*.

6.2.4 The Chaperone shall inform the DCO as soon as practical without leaving the *Athlete* unattended, and ensuring discretion, of any irregularities in notification and/or suspicious *Athlete* behavior during the observation period. Irregularities shall be documented by the DCO if relevant.

[6.2.4 Comment: The ADO is responsible for establishing guidelines for what constitutes suspicious Athlete behavior – examples might be; evading observation, ingesting an unidentified substance, a distressed call to a coach or other unusual behavior.]

6.3 Athlete arrival at the Blood Collection Facility

6.3.1 The *Athlete* arrives at the Blood Collection Facility with a DCO/Chaperone and, if requested, an *Athlete* Representative and/or interpreter. At this time, the *Athlete* should present photo ID to the DCO. An *Athlete*'s inability to provide photo ID shall not invalidate a test. Alternative methods of *Athlete* identification are outlined in section 6.1.3.

6.3.2 An entry and exit log should be maintained to record the names of the persons entering facility, their position, and the times of arrival and departure in instances where multiple *Athlete*s will be tested in a short period of time.

6.3.3 A Blood Sample shall be collected from one *Athlete* at a time. Each *Athlete*'s privacy shall be ensured.

6.3.4 If the *Athlete* is also providing a urine *Sample* at the same session, the DCO may request that the *Athlete* provide the Blood *Sample* first.

6.3.5 The *Athlete* shall be provided with the opportunity to hydrate.

6.3.6 Irrespective of the Testing type, once the *Athlete* has arrived at the Blood Collection Facility/Doping Control Station he/she must be under observation at all times until sample collection is completed.

6.3.7 In order to ensure the same conditions for all, the *Athlete* shall remain seated and relaxed for at least 10 minutes before undergoing Venipuncture.

[6.3.7 Comment: DCOs should assign a member of the Sample Collection Personnel to the role of monitoring the 10 minute seated rest period for each Athlete where possible.This may be conducted in conjunction with maintaining an entry and exit log.]

6.3.8 The *Athlete* may request to leave the Blood Collection Facility for a time, for reasons defined in section 6.1.10. The *Athlete* must be escorted continuously at such times, and the purpose of leaving, agreed time of return, and actual time of return shall be documented by the DCO. If a Chaperone is not available, the DCO shall ask the *Athlete* to remain in the Blood Collection Facility. If an *Athlete* insists on leaving the Blood Collection Facility, the circumstances shall be documented by the DCO.

6.3.9 Before sample collection, the DCO should ask the *Athlete* whether they have been tested before, and whether they require an explanation of the Blood Sample collection procedure.

6.3.10 If the *Athlete* has not been tested before, or requests an explanation of the procedure, the DCO should explain the Blood Sample collection procedure to the *Athlete*.

6.3.11 As a minimum, the DCO shall ensure the *Athlete* is informed of the requirements of the Sample Collection Session and his/her rights and responsibilities.

7. Conducting the Blood Sample Collection Session

7.1 Venipuncture

The type of equipment used for blood collection, and the post-collection process, will differ depending on the type of analysis required. The vaccutainers identified below are recommended as they have been fully validated by *WADA* and or *WADA* accredited laboratories. Alternate equipment which may meet the same criteria to those identified herein may be permissible but should be validated by *WADA* and/or the relevant laboratory, and consistent with the collection methodology presented herein, prior to use. In summary:

7.1.1 Collection of blood for analysis of *Prohibited Substances and Methods* in whole blood (e.g. detection of blood transfusion) or in plasma (e.g. HBOCs and CERA):

Number of *Samples*: 2 ("A" *Sample* and "B" *Sample*)
Volume required: 2 x 3mL (or as specified by relevant Laboratory)
(BD Vacutainer K2EDTA (K2) CE cat no 368856/ref US 367856) The tube used contains EDTA as anti-coagulant. The contents must be homogenized as soon as possible after collection. E.g. tubes should be

gently inverted eight (8) to ten (10) times. The contents shall then be sent to Laboratory with no further action.

7.1.2 Collection of blood for analysis of *Prohibited Substances and Methods* in serum (e.g. detection of hGH, HBOCs and CERA):

Number of *Samples*: 2 ("A" *Sample* and "B" *Sample*)
Volume required: 2 x 5mL (or as specified by relevant Laboratory)
Blood is drawn into a tube that has an inert polymeric serum separator gel and a clotting activation factor (BD Vacutainer® SST II, EU ref 367955).
The contents must be homogenized as soon as possible after collection (e.g. tubes should be gently inverted up-side down at least five (5) times). The contents shall then be sent to Laboratory with no further action.

7.1.3 Collection of blood for analysis of the variables of the *Athlete* Biological Passport:

Number of *Samples*: 1 (no "B" *Sample* required)
Volume required: 1 x 3mL (or as specified by relevant Laboratory).
The tube used contains solid EDTA as anti-coagulant. The contents must be homogenized as soon as possible after collection (e.g. tubes should be gently inverted t eight (8) to ten (10) times). The contents shall then be sent to Laboratory or *WADA* approved laboratory with no further action.

7.1.4 After the required rest period, and the DCO/BCO explanation of procedure, the DCO shall direct the *Athlete* to choose the appropriate number of Blood Sample collection kits, as required by the *ADO*. It is recommended that there are at least three (3) Blood Sample collection kits from which to choose.

[7.1.4 Comment: The kit will typically include the sterile needle, syringe and the relevant vacutainer tubes packaged together in a sealed bag. If kits contain only one vacutainer, and an A and B sample are required, the Athlete shall choose two Blood Sample collection kits.]

7.1.5 The *Athlete* and DCO shall check that the equipment is clean and intact. If either the *Athlete* or DCO is not satisfied with the equipment, the *Athlete* should make another selection.

7.1.6 If the *Athlete* is not satisfied with any of the equipment, and the DCO does not agree with the *Athlete*'s opinion that all of the available equipment is unsatisfactory, the DCO shall instruct the *Athlete* to proceed with the sample collection session and the *Athlete*'s views must be recorded on the doping control documentation by the DCO.

7.1.7 If both the DCO and the *Athlete* agree that none of the equipment is satisfactory, the DCO shall terminate sample collection, and record the reasons.

7.1.8 When the Blood Sample collection kit has been selected, the *Athlete* and the DCO shall proceed with the selection of the sealed, tamper evident Sample transport kit. Selection will proceed in the same manner as 7.1.4 to 7.1.7.

7.1.9 If the secure transport kit includes pre-printed bar code labels, the *Athlete* shall remove these labels from the secure transport kit, and shall verify with the DCO that the code numbers match the transport kit numbers.

7.1.10 If the *Athlete* or DCO find that the numbers are not the same, the DCO shall instruct the *Athlete* to choose another secure transport kit, and shall document the occurrence.

7.1.11 The *Athlete* shall place one label longitudinally on each of the vacutainer tubes. The label shall be placed towards the top of the tube(s), near the cap. The *Athlete* may authorize the DCO, or the *Athlete* Representative to place the labels on the tubes.

7.1.12 The DCO shall record the numbers, and the *Athlete* and the DCO shall check the documentation to ensure that the DCO has accurately recorded the information.

7.1.13 The *Athlete* shall give the BCO the Blood Sample collection equipment, including the vacutainer(s). The BCO shall assemble the equipment in sight of the *Athlete*.

7.1.14 The BCO shall assess the most suitable arm for Venipuncture. This will always be the non-dominant arm, unless the BCO assesses the other arm to be more suitable or the *Athlete* requests a specific arm.

7.1.15 If the BCO believes that a Butterfly Needle is required for Venipuncture, the *Athlete* shall be asked to select a Butterfly Needle from a selection of sealed needles. The procedure then continues as normal.

7.1.16 If necessary, the BCO shall apply a tourniquet to the *Athlete*'s upper arm. If the *Athlete* has a skin problem, the tourniquet shall be applied over thin clothing or a paper tissue so that the skin is not pinched.

7.1.17 The skin at the puncture site shall be cleaned with a sterile disinfectant wipe or swab.

7.1.18 The needle shall be inspected visually before insertion. After the BCO has inserted the needle into the antecubital vein, the tourniquet shall be removed.

7.1.19 The BCO shall collect the amount of blood advised by the relevant Laboratory or *ADO* for the type of sample analysis to be conducted. The collection vessel (s) shall always be kept in full view of the *Athlete*.

7.1.20 In the event that the BCO is unable to draw sufficient blood from the first attempt, the procedure shall be repeated and up to three attempts in total shall be made before the DCO, in consultation with the BCO, decides to terminate collection. No more than three attempts to insert a needle into the *Athlete*'s body shall be made. The DCO shall record the reasons for terminating the collection attempt.

7.1.21 The blood shall be collected into one or more vessels, depending on the requirements of the *ADO* regarding intended analyses.

7.1.22 Blood collection equipment must be disposed of in accordance with the required standards for handling blood and the BCO's protocol.

7.1.23 The recommended temperature recording device used to monitor the transport conditions should be turned on to ensure temperature reaches 2-8 degrees Celsius before *Samples* are placed inside cool-box.

7.2 Aftercare procedure

7.2.1 After withdrawing the needle from the *Athlete*'s arm, the BCO shall place a pad over the puncture site and instruct the *Athlete* to press firmly on the pad. The BCO may also choose to apply pressure to the wound.

7.2.2 If necessary, pressure shall be applied for 2–3 minutes prior to undertaking the sample sealing procedure. The BCO shall assess the wound and indicate to the *Athlete* and the DCO when the *Athlete* is ready.

7.2.3 The BCO or the DCO shall advise the *Athlete* not to undertake any strenuous exercise using the arm for at least 30 minutes. This minimizes any potential bruising.

7.2.4 The BCO shall be prepared to conduct first-aid if necessary.

7.3 Post collection processing for the purpose of:

7.3.1 Analysis of whole blood (or plasma)

For the analysis of whole blood or plasma, the 2 x 3mL Blood Samples, comprising of an "A" and a "B" *Sample* (or the *Sample* collected for the purposes of the *Athlete* Passport) should be inverted gently eight (8) to ten (10) times to mix the blood with the anti-coagulant contained in the tube in order to avoid clot formation. This step shall be taken as soon as possible. The Blood Samples then be sealed and made ready for transportation in accordance with section 7.4.

7.3.2 Analysis of serum

For the analysis of serum, the 2 x 5mL Blood Samples, comprising of an "A" and a "B" *Sample* should be inverted gently five (5) times to initiate clotting and remain at room temperature for the time recommended by the tube manufacturer (15 minutes for BD Vacutainer® SST II advance tubes) before being sealed and made ready for transportation in accordance with section 7.4.

[7.3.2 Comment: For Samples collected that require being left at room temperature for a pre-determined length of time (as specified by the tube manufacturer), the Athlete should be asked and encouraged to remain and observe his/her Samples for this period of time. If the Athlete declines to do so, this in no way invalidates the test. The DCO should maintain these Samples under their observation and monitor the pre-determined period of time. The ADO may wish the DCO to record details of any Athlete that does not remain to observe their Samples during this period.]

7.4 *Sealing of the Blood Samples*

7.4.1 The *Athlete* shall take the secure transport kit already selected in, or, if not yet selected, shall choose a transport kit from a selection of kits in accordance with the process outlined.

7.4.2 The DCO shall instruct the *Athlete* to place one Blood Sample into each of the A and B tamper evident sample transport kits. The *Athlete* may request the DCO or the *Athlete* Representative to complete this process on their behalf.

7.4.3 Both the DCO and the *Athlete* shall check that the kits are securely sealed. Where possible, care must also be taken so that the samples are stored upright.

7.4.4 The DCO and *Athlete* should ensure that the equipment code numbers are accurately recorded on the Doping Control documentation. The *Athlete* and DCO should initial or sign the documentation to show they are satisfied with the procedure.

7.4.5 The DCO shall ensure the Blood Sample is stored in a secure, preferably cooled (2-12 degrees Celsius), location (i.e. transport bag) until ready to proceed to section 7.7 - Transport of samples.

7.5 Paperwork

7.5.1 The DCO shall instruct the BCO to sign the form to confirm that he/she collected a Blood Sample from the *Athlete* in accordance with procedures.

7.5.2 The *Athlete* shall be provided an opportunity to document any blood transfusions over the last six months, and to indicate any medications,

including those which may affect the ability of the blood to clot, taken over the past seven days.

7.5.3 The DCO shall check all information on the form and sign to confirm that the Blood Sample collection was conducted in accordance with procedures.

7.5.4 The *Athlete* and the *Athlete* Representative, if present, shall be invited to check that all information on the form accurately reflects the details of the sample collection session. The *Athlete* shall be invited to complete the comments section of the form if he/she has any concerns or comments regarding the procedure. If there is insufficient space on the form, the *Athlete* shall be invited to complete a supplementary report form.

7.5.5 Blood-only doping control form:
- The DCO, the *Athlete* Representative, if present, and the *Athlete* shall then sign the doping control form.

7.5.6 Combined urine/blood doping control form:
- If the urine sample has already been collected, the DCO, the *Athlete* Representative, if present, and the *Athlete* shall sign the doping control form.
- If the urine sample has not yet been collected, the *Athlete* shall proceed to provide a urine sample before the DCO, the *Athlete* Representative, if present, and the *Athlete* shall sign the doping control form.

7.5.7 The DCO must give a full copy of the form to the *Athlete*.

7.5.8 The *Athlete* shall then proceed to provide a urine sample if required, or is free to leave the Blood Collection Facility.

7.6 Sample storage

7.6.1 The DCO is responsible for ensuring, in accordance with the *ADO*'s criteria for Blood Sample storage, that all samples are stored in a manner that protects their identity, integrity and security whilst in the Blood Collection Facility.

7.6.2 Samples must not be left unattended, unless they are locked away, in a refrigerator or cupboard, for example. Access shall be restricted to authorized personnel.

7.6.3 The Blood Samples must be stored in a cool location, preferably in a refrigerator or cool box. Temperature should be maintained between 2 – 12 degrees Celsius.

7.6.4 If the conditions of storage did not meet the guidelines for temperature in section 7.6, the DCO shall document this, and shall also contact the *ADO*

immediately to inform them of the variation in temperature, and the length of time the samples were affected.

7.6.5 If the temperature deviates outside the recommended 2 -12 degrees for a period of time likely to affect the composition of a Blood Sample, the *ADO* and Laboratory shall determine whether or not analysis should proceed on the sample.

7.6.6 The DCO shall accurately complete appropriate documentation for each transport bag/container to ensure that the Laboratory can verify the contents of the bag/container.

7.6.7 The DCO shall follow the *ADO*'s system to ensure that analysis instructions (e.g. type of analysis to be conducted) are provided to the Laboratory.

7.6.8 The DCO shall complete the Laboratory advice form/chain of custody form. The Laboratory copy of this form and the Laboratory copy of the doping control form shall be placed in the transport bag with the samples, and sealed, preferably in the presence of a witness. Documentation identifying the *Athlete* shall not be included with the samples.

7.6.9 If relevant, the DCO shall record the time(s) the transport bag is opened and resealed, on the Laboratory advice form or chain of custody form.

7.6.10 The DCO shall keep the samples under his/her control until they are passed to the courier. Blood Samples should be dispatched as soon as possible after collection to arrive at the Laboratory ideally on the same day, and preferably within 36-48 hours of collection.

7.6.11 All documentation relevant to the testing session shall be forwarded to the *ADO* by the approved method as soon as possible after sample collection.

7.7 Transport / handover of Samples

7.7.1 The Blood Samples shall be transported to the Laboratory in a refrigerated state. No sample should be allowed to freeze, and should ideally be kept at a temperature of approximately 4 degrees. Temperature should be maintained between 2 – 12 degrees Celsius. A temperature recording device is recommended to be included with the transported samples to ensure the appropriate temperature range has been maintained during transport.

7.7.2 Samples should remain in an upright position during transportation, whenever possible.

7.7.3 Samples may be taken directly to the Laboratory by the DCO, or handed over to a third party for transportation. This third party must document the

chain of custody of the samples. If an approved courier company is used to transport the samples, the DCO shall record the waybill number.

7.7.4 Due to the more stringent temperature and analysis requirements for blood, blood and urine samples may be transported separately. The relevant paperwork linking the two samples shall be included with each shipment, however.

7.7.5 Transport of Blood Sample(s) from site of collection to Laboratory should be made as soon as possible and preferably within 36 hours of collection.

7.7.6 The Laboratory is required to document receipt and the subsequent chain of custody of samples. *Sample*s are reviewed for evidence of tampering or damage, and stored in appropriate conditions until analysis in accordance with the *International Standard* for Laboratories.

Appendix 1: Integration of Multiple Blood Testing Types

When planning and conducting a Sample Collection Session, an *ADO* may wish to collect sufficient volume of blood to enable multiple types of analysis to be conducted simultaneously. Additionally, conduct of an *Athlete* Biological Passport test may reveal abnormal variables that warrant immediate analysis for prohibited substances or methods. In such cases it is prudent to have a complementary sample available in the event a "B" sample analysis is required.

Conducting multiple types of analyses however will require careful consideration, especially in relation to the *Sample* Collection equipment needed. This section seeks to offer guidance to *ADO*s on integrating multiple blood testing types.

Equipment

The following matrix details the equipment required for all blood collection and analysis types (including the *Athlete* Biological Passport tests):

Test	Analysis Matrix	Tubes[#]	V / tube (mL)	# tubes	Tube inversion	Transport kit
hGH / HBOCs / CERA[&]	Serum	**BD** Vacutainer® SST II Plus (cat. # 367955)	5	2[+]	X5	BEREG-KIT small (94-1094) or similar Accessory package[$] (94-1096)
HBOCs / BT[§] / CERA	Plasma /Blood[§]	**BD** Vacutainer® EDTA (CE #368856, US #367856)	3	2[*, +]	X8-10	BEREG-KIT small (94-1094) or similar Accessory package [$] (94-1095)
***Athlete* Biological Passport (ABP) / HBOCs /CERA[§]**	Plasma /Blood	**BD** Vacutainer® EDTA (CE #368856, US #367856)	3	1-2[*, +]	x8-10	BEREG-KIT small for two tubes (94-1094) OR BEREG-KIT small single for one tube (90-1098) or similar Accessory package[$] (94-1095) OR (94-1093 / 94-1099) for one tube or similar

[&] CERA analysis can be performed in either serum or plasma; however the recommended matrix is serum;

[#] The vaccutainers identified below are recommended as they have been submitted to full validation by WADA. Alternate equipment which may meet the same criteria to those identified herein may be permissible but should be validated by WADA, and consistent with the collection methodology presented herein, prior to use.;

[+] One tube is used for collection of the "A" sample, the other for the "B" sample, if needed;

[$] The accessory package includes the specified collection tubes and other accessories (e.g. needle, disinfection pads, etc);

[§] For Blood Transfusion (BT), whole non-coagulated blood is used; for HBOCs/ABP/CERA the centrifugation of the Blood *Sample* (on e.g. Ficoll gradient) is required to separate the plasma fraction from the cellular components;

* When testing the blood variables of the ABP only, one (1) EDTA tube is sufficient; however the collection of two (2) EDTA tubes is recommended to allow the simultaneous testing for CERA/HBOCs (for example) in cases of abnormal results for the blood variables included in the ABP.

Possible Test combinations

The following matrix, details the equipment requirements for possible combinations of multiple analysis types:

	hGH / HBOCs / CERA (Serum)	**BT (Whole blood) HBOCS / CERA (Plasma)**	**ABP (Plasma)**
hGH / HBOCs / CERA (Serum)	• 2 x serum tubes • Total volume: 10mL	• 2 x serum tubes • 2 x EDTA tubes • Total volume: 16mL	• 2x serum tubes • 1-2x EDTA tubes • Total volume: 13-16mL
BT (Whole blood) HBOCS / CERA (Plasma)	• 2 x serum tubes • 1-2 x EDTA tubes • Total volume:13-16mL	• 2 x EDTA tubes • Total volume: 6mL	• 2-3 x EDTA tubes • Total volume:6-9 mL
ABP (Plasma)	• 2x serum tubes • 1-2x EDTA tubes • Total volume: 13-16mL	• 2-3 x EDTA tubes • Total volume:6-9 mL	• 1 EDTA tube • Total volume: 3mL
All analysis types	• 2 x serum tubes • 2-3 x EDTA tubes • Total volume: 16-19 mL		

[Comment: The analysis of HBOCs and CERA can be conducted in either serum or plasma. The analytical matrix used in the assay will vary depending on the Laboratory. Please contact the Laboratory that is to conduct the analysis to determine this information.]

[Comment: When using both types of tubes for multiple test types, the specific procedures followed for each type of tube – for example number of inversions – should still be followed].

[Comment: These specifications should serve for general guidance only. When wishing to collect blood to test for different prohibited Substances and/or Methods at the same Sample Collection Session, it is recommended that the ADO in charge of sample collection contact the Laboratory that is to conduct the analyses to ascertain the type and total number of tubes and total volume of blood to collect].