

GUIDANCE FOR BLOOD SAMPLE COLLECTION, CENTRIFUGATION AND STORAGE PRIOR TO TRANSPORT TO PATHOLOGY SPECIMEN RECEPTION AT WORCESTERSHIRE ACUTE HOSPITALS NHS TRUST

This document contains information regarding:

1. The sample types and tests suitable for centrifugation and/or overnight storage prior to transport to Pathology, Worcester or Redditch site, Worcestershire Acute Hospitals NHS Trust (WAHT)
2. Setting up and using a centrifuge to spin clotted SST yellow top (BD vacutainer) tubes in readiness for storage
3. The steps to take in the event of spillage or tube breakage in the centrifuge

This document is intended for use by those centrifuging samples outside of the main Pathology laboratory. Please see associated documents for SOP for use in the Pathology laboratories.

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Procedure Amendments

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1. Sample types and tests suitable for centrifugation and overnight storage

At Pathology WAHT, BD Vacutainer® Blood Collection Tubes are used routinely. Samples should be collected as per manufacturer instructions, using correct order of draw (see [Sample collection - Worcestershire Acute Hospitals NHS Trust](#)) and by those trained and competent in phlebotomy (as per local procedures). Samples should be appropriately labelled with 3 unique identifiers ([Sample labelling - Worcestershire Acute Hospitals NHS Trust](#)).

Ideally, gold top SST samples for Biochemistry should be centrifuged between 30 mins and 4 hours post collection. However, this is not always achievable with transport times to the main laboratory.

The following table provides information on how samples should be prepared for storage or stored and for how long to ensure that quality and integrity is maintained between collection and transportation. Please ensure the date and time of sample collection is correctly detailed on the request form.

Investigations	Specimen Container required	Preparation and storage conditions post sample collection	Stability between collection and transportation to lab
Routine biochemistry investigations (e.g. electrolytes and creatinine, liver function test, CRP, amylase, lipid profile, thyroid function tests, PSA, ferritin, B12 & folate)	Gold topped SST tube	Sample should be mixed by inversion 6 times and allowed to clot for at least 30 mins at room temperature Samples should be centrifuged within 4 hours of collection (see below) Following centrifugation samples should be stored in the fridge at 2 – 8 °C Indicate on request form that samples have been centrifuged	24 hours (if centrifuged)
Biochemistry investigations: HbA1c	Purple topped EDTA tube	Leave sample as whole blood Store in the fridge at 2 – 8 °C	24 hours
Haematology investigations: FBC	Purple topped EDTA tube	Leave sample as whole blood Store in the fridge at 2 – 8 °C	24 hours*

*Please note sample will not be suitable for blood film if required

If samples are being centrifuged and/or stored overnight routinely, please let the Biochemistry laboratory know (wah-tr.dutyBMS@nhs.net)

Following storage, samples should be transported to the laboratory in appropriate packaging ([Sample transport - Worcestershire Acute Hospitals NHS Trust](#))

2. Centrifuging clotted SST (gold top) tubes prior to storage

Centrifuges used should be suitable for centrifuging blood collection tubes, a swing bucket format being preferred (see manufacturer's instructions). The centrifuge speed should be able to be set in rcf/g and rpm.

Set up the centrifuge as per manufacturer's instructions on a flat, clear surface

2.1. Operation

All SST (gold top) samples should be mixed and allowed to clot for at least 30 minutes at room temperature prior to being centrifuged

1. Match samples so they are in matching pairs or threes with approximately the same level of blood in them.
2. If there is no match available use a balancing tube containing water
3. Place samples in the centrifuge and individual buckets (if applicable) opposite each other so they are balanced (see diagram below):

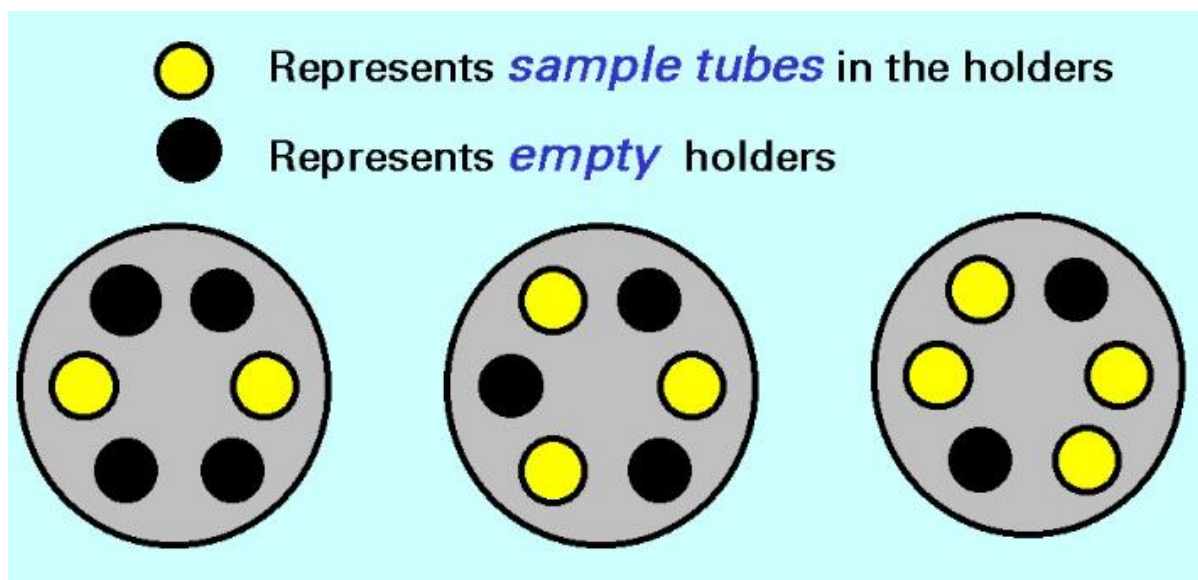


Figure 1: Balancing a centrifuge (Image from: <https://ehs.cornell.edu/research-safety/biosafety-biosecurity/biological-safety-manuals-and-other-documents/centrifuges>)

4. Gently close the lid
5. Check centrifuge settings
 - a. For swing bucket centrifuges samples should be spun at 1300 – 2000 g for 10 mins
 - b. For fixed angle centrifuges samples should be spun at 1300 – 2000 g for 15 mins
6. Press start
7. Wait for the centrifuge to come up to speed. If it starts to vibrate, stop the centrifuge, wait for it to stop, open the centrifuge and check the tubes are balanced, before starting again.
8. The centrifuge will run for 10 - 15 minutes

9. At the end of the run the centrifuge will slow down. Only open the centrifuge once it has stopped.
10. Remove all the tubes
11. Store sample in the fridge prior to transport
12. **On the sample request form, indicate that the sample has been centrifuged and date and time of centrifugation**

2.2. Maintenance of centrifuges

Manufacturer instructions should include information on maintenance and servicing of centrifuges, please follow these instructions. It is recommended that centrifuges are covered by a service contract, to ensure they are regularly serviced and in case of a fault with the centrifuge.

Centrifuges should be regularly checked for signs of wear and tear and damage.

3. Suspected leak or breakage

Below is a procedure to follow suspected leak or breakage, as a guide, please also consult the manufacturer's instructions.

1. If a sample leak or breakage in the centrifuge is suspected, leave the lid closed for 30 minutes to allow any aerosols to settle. Put a note on top of the centrifuge to alert others.
2. Carefully remove the specimens and dispose of all waste into a clinical waste container (use a sharps container if required)
3. If possible, remove the centrifuge buckets from the centrifuge
4. Clean the centrifuge bowl and buckets, including the rotor with ChemGene and paper towel
5. Following cleaning ensure the centrifuge bowl, rotor and buckets are thoroughly dried with paper towel and all paper towel is removed.
6. Place buckets back into centrifuge

4. Associated documents

LP-U-BSC: Procedure for the Maintenance and Use of Centrifuges

5. Pathology website and contact details

WAHT Pathology website: [Information for Healthcare professionals - Worcestershire Acute Hospitals NHS Trust](#)

If you have any queries regarding centrifuging samples, please email wah-try.dutyBMS@nhs.net