

SAMPLE COLLECTION GUIDE

A Practical Approach



Nexus Academic Publishers

SAMPLE COLLECTION GUIDE

Edited by

Dr. Muhammad Zubair Shabbir, PhD
Assistant Professor, Quality Operations Laboratory,
UVAS, Lahore–Pakistan
Email: vetvains@uvas.edu.pk

Dr. Arfan Ahmad, PhD
Assistant Professor (TTS) University Diagnostic Laboratory
UVAS, Lahore–Pakistan
Email: iffivet@uvas.edu.pk

Dr. Muhammad Nauman Zahid, PhD
Assistant Professor (TTS), Quality Operations Laboratory,
UVAS, Lahore–Pakistan
Email: nauman.zahid@uvas.edu.pk

Dr. Jawad Nazir, PhD
Assistant Professor (TTS), Department of Microbiology,
UVAS, Lahore–Pakistan
Email: jawad.nazir@uvas.edu.pk

Dr. Muhamamd Nawaz, PhD
Assistant Professor (TTS), Department of Microbiology,
UVAS, Lahore–Pakistan
Email: muhammad.nawaz@uvas.edu.pk

Dr. Haroon Akbar, PhD
Assistant Professor (TTS), Department of Parasitology,
UVAS, Lahore–Pakistan
Email: drharoonakbar@uvas.edu.pk

Sample Collection Guide

Sample Collection Guide



Nexus Academic Publishers (NAP)
Lahore Pakistan

First Published in Pakistan in 2013

The first edition published in 2013 by

Nexus Academic Publishers (NAP)

1-B Opposite School -4, Gate # 2, Old Officer Colony Zarar Shaheed Road, Sadar Lahore Cantt. Lahore, Pakistan Phone: 0092 322 4742353

email: info@nexusacademicpublishers.com

All rights reserved No part of Publication may be reproduced graphically or electronically, including storage or retrieval system without prior written permission of the Publisher : -

Nexus Academic Publishers (NAP)

1-B Opposite School -4, Gate # 2, Old Officer Colony Zarar Shaheed Road, Sadar Lahore Cantt. Lahore, Pakistan Phone: 0092 322 4742353

email: info@nexusacademicpublishers.com

Whilst the advice and information in this book are believed to be true and accurate at the date of going to press, neither the author(s) nor the publisher can accept any legal responsibility or liability for any errors or omissions that may be made.

Nexus Academic Library Cataloguing in Publication Data

A catalogue record for this book is available for the Nexus Academic Publishers

Price :	In land	Open access
	Foreign	Open access

Typeset in 9 Californian FB by Nexus Academic Publishers, Punjab, Lahore Cantt (Pakistan)

Printed and bound in Pakistan

What do you think about this book? Or any other Hodder Arnold title? Please send your comments to info@nexusacademicpublishers.com

Dedication

*We would like to dedicate this manual
to all students.*

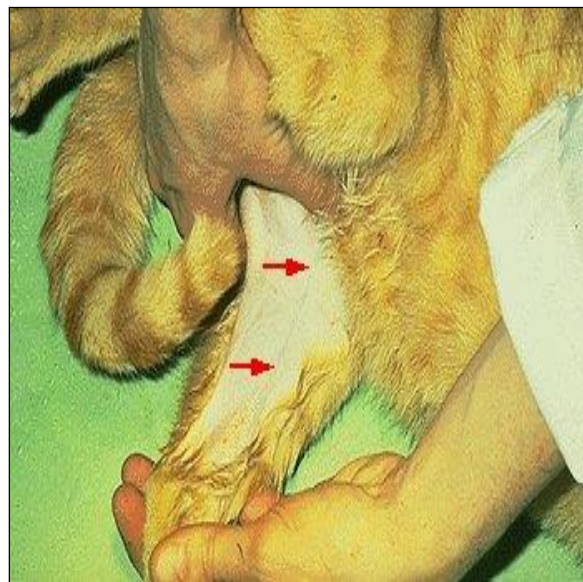
Contents

COLLECTION OF BLOOD FROM CAT	1
COLLECTION OF BLOOD FROM DOG	1
COLLECTION OF BLOOD FROM SHEEP	2
COLLECTION OF BLOOD FROM CATTLE	3
Jugular Venipuncture	3
Coccygeal Venipuncture	4
COLLECTION OF BLOOD FROM CHICKEN	4
Jugular Vein of Chicken	5
COLLECTION OF BLOOD FROM HORSE.....	5
COLLECTION OF SKIN SCRAPPING	5
How Is a Skin Scraping Done?.....	6
COLLECTION OF FECAL SAMPLE	6
REFERENCE	6

COLLECTION OF BLOOD FROM CAT

The medial saphenous vein of the cat has a long straight course and is very superficial. It is a good vein from which to collect small volumes of blood. The cat is restrained in lateral recumbency. Pressure is applied in the inguinal region to occlude venous return and cause the vein to engorge with blood. The site is wiped with alcohol and hairs are shaved. Use, 22- to 25-gauge needle attached to a 1- or 3-ml syringe for the collection of blood. Because the vein has a small diameter, vigorous aspiration will result in

collapse of the vein. Therefore only slight suction should be applied to the syringe when aspirating blood. The blood will flow slowly into the syringe; collect only a small volume (up to 1-ml) of blood. At the completion of the venipuncture, the needle is removed from the vein; the holder should release pressure from the inguinal region and place firm digital pressure at the puncture site for several minutes to prevent hematoma formation. Apply some disinfectant on the area after withdrawing blood.

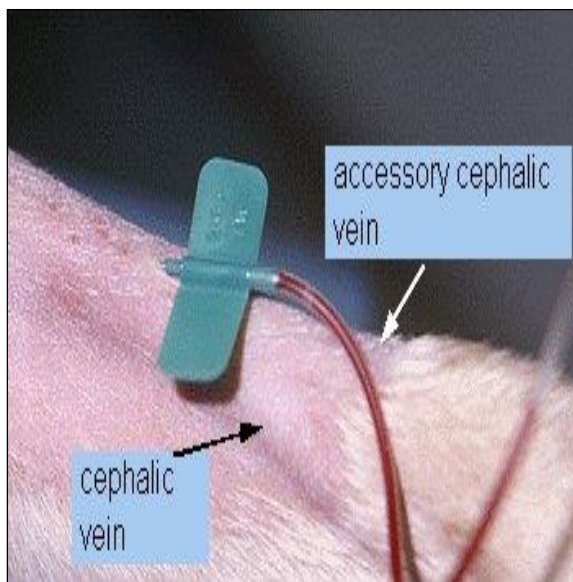
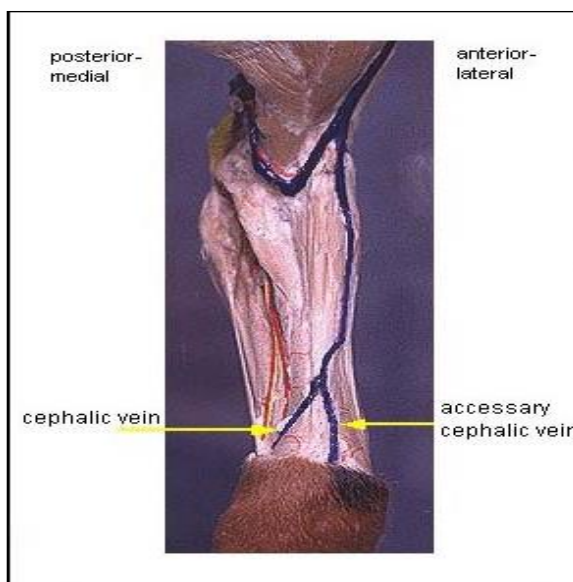
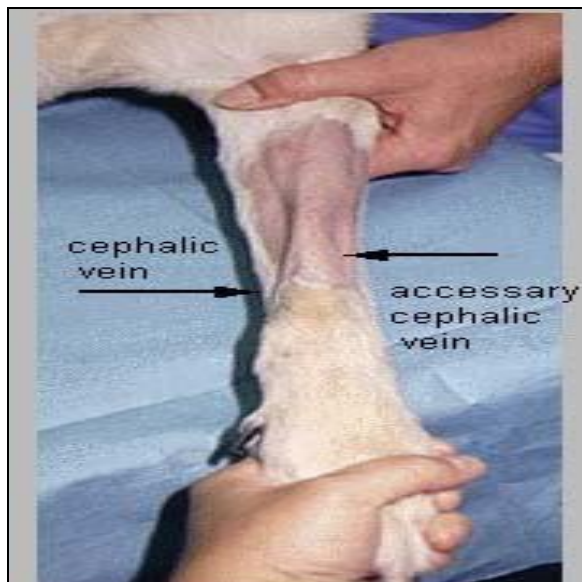


College of Veterinary Medicine; Small Animal DX and Therapeutic

COLLECTION OF BLOOD FROM DOG

Restrain the dog so that taking the blood sample does not become a fight. Shave the area just below the elbow on the top of the leg. Shave where the cephalic vein is most prominent. In some dogs, the cephalic vein is not as prominent and you may have to draw from the jugular vein. If drawing a sample from the jugular vein, shaving is usually not required unless the dog has excessive amounts of hair. Occlude the cephalic vein by placing your hand under the elbow so that the dog cannot move its leg back and taking your thumb over the top of the leg and applying pressure so that the cephalic vein will fill with blood and become more visible. Some dogs will willingly give you their leg and allow you to take a blood sample without much restraint. Selecting the needle size should be based on the size of the dog and the size of the vein. Typically, a 22G needle works for most blood draws. In larger breed dogs, an 18G needle will be better and the blood sample will be obtained much more quickly. Spray alcohol on the area that is about to be punctured by the needle as this will

sterilize the area and prevent any bacteria from entering with the needle. Grab the leg with your hand that is not holding the needle and place your thumb next to the lateral aspect of the cephalic vein to prevent the vein from moving on you. Insert the needle of the syringe directly over the raised cephalic vein. If you have entered the cephalic vein correctly, a small amount of blood will enter the tip of the syringe. At this point, you should pull back on the syringe plunger and blood should begin to enter. Take 2-5 ml of blood at one time. Pulsate the leg if blood is not entering the syringe very quickly. Your assistant can do this by letting up on the pressure exerted by the thumb on the cephalic vein and then quickly reapplying the pressure so that the vein will fill with blood again. Remove the needle and tell your assistant to release pressure over the vein before doing this. Otherwise, blood will start coming out of where you just inserted the needle. Apply pressure over the venipuncture site for 30 seconds and then apply a disinfectant.



College of Veterinary Medicine; Small Animal DX and Therapeutic

COLLECTION OF BLOOD FROM SHEEP

Correctly position the animal for shearing. Shave the area approximately 4 inches wide by 8 inches long. Beginner can take the help of assistant. The assistant should turn the head of the animal at a 30-degree angle to the side by holding the animal under its jaw to allow for easy access to the vein. The animal's body may also need to be restrained. Locate the vein. The easiest way to locate the vein is to draw an imaginary line from the middle of the animal's eye down the side of its neck. The vein can be located by applying pressure with the thumb or fingers below the half waypoint of the shaved area. The pressure will cause the vein to pop up and be easy to see. A small amount of alcohol poured over the area where the vein is supposed to be located.

Once the vein has been located, the area needs to be properly cleaned to keep bacteria out of the needle insertion site. This is accomplished by using the alcohol spray on the area. Never go back over a place that has already been wiped, because bacteria could be carried back into the clean area.

Once the area has been cleaned and the vein has been located, the blood can be drawn. This can be done by using a needle (20 gauge) and 5 cc syringe. If a needle and syringe are used, be sure to check that the needle is firmly attached to the syringe and that both the syringe and the needle are new and clean. Contamination from other animals could cause contamination of the sample or infection of the animal. Remove the cap from the needle first and be careful not to prick yourself. Insert needle into the vein at the

lowest point possible on the exposed area of the neck. By doing this, the vein can still be used if there are unsuccessful attempts at drawing the blood. Gently pull back on the syringe to see if the needle is in the vein. If no blood pulls back into the syringe, the needle is either parallel to the vein, or it has gone completely through the vein and out the opposite side. Light movements of the syringe can be used to try to locate the vein and penetrate

it. When blood is easily pulled back into the syringe, the needle is within the vein. Fill the syringe with the desired amount of blood. Once the sample has been obtained, remove the pressure from the vein, take the needle out, and press gently on the site of needle insertion. Finally, place the needle through the stopper of the appropriate blood collection tube.



College of Veterinary Medicine; Small Animal DX and Therapeutic



Collecting Genetic Material from Beef Cattle; Matthew McClure; Robert Weaber and KC Olson; Department of Animal Science

COLLECTION OF BLOOD FROM CATTLE

Jugular Venipuncture

Using the halter, the head is elevated slightly, drawn to the side opposite the jugular vein to be sampled, and tied to a stationary surface. The vein is occluded by digital pressure

in the jugular groove low in the neck. Insert 18 gauge needle into the distended jugular vein at approximately 45°. When positioned in the vein, collect blood. When the desired volume has been collected, the occluding pressure is removed.

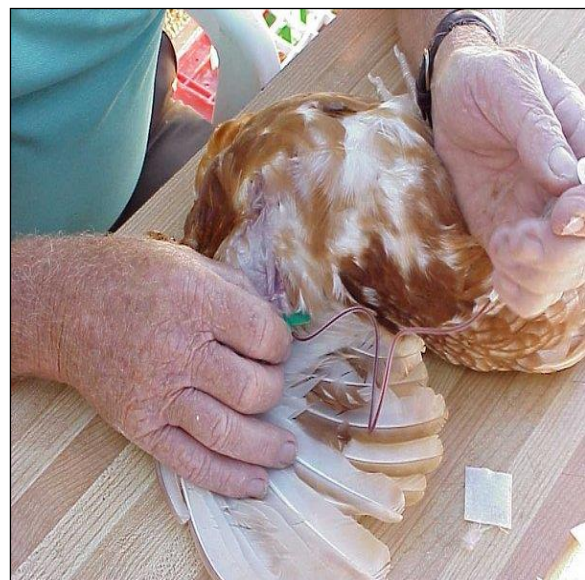
Coccygeal Venipuncture

Blood collection from the coccygeal (tail) vein is performed with the animal restrained in a crush. The tail is held in one hand such that the ventral surface is accessible. The ventral surface of the tail is cleaned with a swab to remove faecal material. A needle is then inserted perpendicular to the skin surface on the midline between (approximately) the third and fourth coccygeal vertebrae. When blood flows from the needle, the syringe is attached and the sample is collected. After sample collection is complete the tail is released. The syringe may be attached to the needle prior to

insertion with gentle aspiration used to determine if the needle is in the correct location.

COLLECTION OF BLOOD FROM CHICKEN

Venipuncture of the cutaneous ulnar or brachial veins (wing veins) is superficial and easily visualized. Therefore, bleeding from these veins is usually the simplest and best method for obtaining blood from turkeys, chickens, and most fowl under field conditions. This is especially when the bird is to be returned to the flock. Expose the vein to view by plucking a few feathers from the ventral surface of the humeral region of the wing.



NSW; Arbovirus Surveillance & Vector Monitoring Program



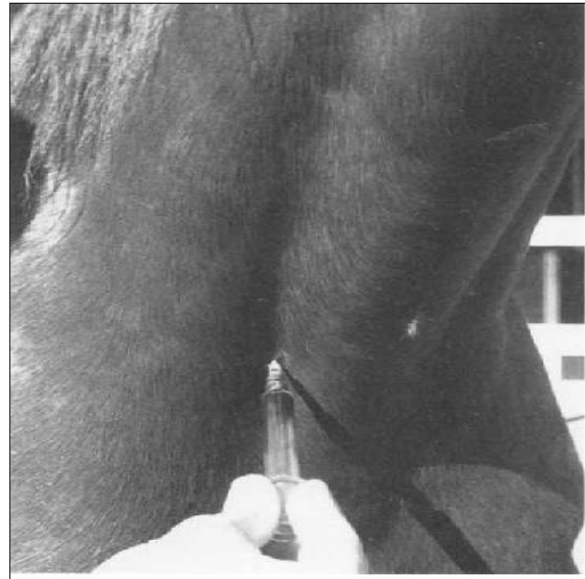
Poultry Blood Collection Aaron J. Ison, Sara J. Spiegle, Teresa Y. Morishita; Avian Disease Investigation Laboratory, Avian Disease Investigation Laboratory, OSU Extension, Veterinary Medicine and Avian Disease Investigation Laboratory

The vein will be seen lying in the depression between the biceps brachialis and triceps humeralis muscles. It is more easily seen if the skin is first dampened with 70% alcohol or other colorless disinfectant. To facilitate venipuncture, extend both wings dorsally by gripping them firmly together in the area of the wing web with the left hand. Puncture the vein of the right wing and collect blood. The animal care and use guide for research animals requires limiting blood collection to no more than 10% of the bird's blood volume. Blood volume as a percentage of body

weight averages 7%. A convenient calculation is to draw 1% of the body weight (i.e. 1 mL from a 100-g chick).

Jugular Vein of Chicken

The vein on the side of the outstretched neck is the jugular vein. Place the bird on a table, setting it on its side. Stretch out the neck with one hand and part the feathers along the neck. The right jugular vein is usually larger. Place the needle at a slight angle, bevel up, against the vein. Puncture the vein and slowly withdraw blood. Remove the needle and apply pressure to the vein for a few seconds. Fill the appropriate vial 1/3 to 1/2 of its full volume.



Techniques and clinical application of arterial blood collection in the horse; R. J. ROSE, P. D. ROSSDALE; Equine Veterinary Journal Volume 13, Issue 1, pages 70–73, January 1981

COLLECTION OF BLOOD FROM HORSE

The jugular vein in the neck region of a horse is the best place to collect a blood sample. First, clean the jugular furrow of the neck with a piece of cotton or gauze pad soaked in alcohol. This will sanitize the area and make the vein easier to see. Restrain the animal with the head slightly elevated. The jugular groove is identified. The vein is occluded with digital pressure at the base of the jugular groove. A needle is advanced through the skin either with a

firm thrust into the jugular vein or by gently easing the needle of 21gauge through the skin and into the jugular vein at a 35° angle towards the head. When the desired volume is received, digital pressure may be removed and the needle withdrawn from the vein. On completion of procedure observe animal for signs of excessive distress and treated if necessary. After collection of desired sample, apply disinfectant on the area.



Vet 132–Clinical Pathology II
loudoun.nvcc.edu/vetonline

COLLECTION OF SKIN SCRAPPING

Skin problems and itchiness are common and frustrating disorders in animals. With so many underlying causes, finding the reason for the problem is important in order to find an appropriate treatment or even a cure. A skin scraping is a commonly performed test that can help diagnose certain skin inflammations, fungal infections, and skin cancer and is quite effective in determining the

presence of mites. A skin scraping is a collection of a sample of skin cells that are evaluated under a microscope. A skin scraping can reveal the presence of abnormal cells in the superficial layers of the skin. It can reveal certain fungi, bacteria, cancer cells and parasites. By determining the underlying cause of the skin disorder, an effective and appropriate treatment can begin.

Susan Schoenian Sheep 201; a Beginner's Guide to Raising Sheep



How Is a Skin Scraping Done?

A skin scraping is performed by collecting a sample of skin cells with the use of a scalpel blade. The blade is used to gently scrape layers of the skin, usually until a small amount of blood is seen, so that deep cells in the skin can be collected. This is important, especially if parasites are suspected, since they often live deep in the skin. The skin cell sample is placed on a microscope slide, mixed with oil and evaluated under a microscope.

COLLECTION OF FECAL SAMPLE

Preferably, fecal samples should be collected from the rectum. If material is collected from the ground, it should be from the top of a freshly passed deposit. An appropriate sample size is 5g. Preferably submit a "golf ball" size sample in a zip-lock-type plastic bag or container that is air tight,

watertight, and suitably robust. Samples should be submitted to the lab within 24 hours if possible. Store the specimens in a refrigerator until shipping and send with ice packs.

REFERENCE

- Small Animal DX & Therapeutic Techniques, College of Veterinary Medicine, Washington State University,
 Collecting Genetic Material from Beef Cattle; Matthew McClure; Robert Weaber and KC Olson; Department of Animal Science
 Aaron J. Ison, Sara J. Spiegle, Teresa Y. Morishita; Poultry Blood Collection , Avian Disease Investigation Laboratory
 S Parasuraman, R Raveendran, and R Kesavan, J Pharmacol Pharmacother. 2010 Jul-Dec; 1(2): 87-93.
 GEERING WA, FORMAN AJ, NUNN MJ, Exotic Diseases of Animals, Aust Gov Publishing Service, Canberra, 1995, p.419-420