

ANNEXURE 12

VCT TRAINING: PARA-PROFESSIONALS DAY ONE SKILLS GUIDELINES ADOPTED

SAVC DAY 1 SKILLS FOR THE ANIMAL HEALTH TECHNICIAN

Animal Health Technicians should be able to practically perform, demonstrate or explain how to perform the following functions:

1. Regulatory functions (TB, CA, Sheepscab, etc.)

Disease surveillance and inspection of all livestock, poultry and game

- a. Collect a sample from a suspect rabies animal with correct completion of documentation.
- b. Do a skin scraping / wool scraping
- c. Perform an intradermal tuberculin test and interpret after 72 hours.
- d. Collect blood from the coccygeal vein (tail) and jugular veins
- e. Restrain the head of a cow and pull out the tongue

2. Disease control (Non-controlled diseases)

Implementation of vaccination programs in livestock, in order to prevent, and/or control animal diseases and to strive towards establishing a disease-free animal

population and administration of these vaccines.

Implementation of parasite control programs in livestock, in order to prevent,

and/or control animal parasites and strive towards establishing a parasite free animal population.

- a. Examine and evaluate the mucous membranes in an animal
- b. Take the temperature, pulse and respiration of an animal.
- c. Read a thermometer quickly and easily.
- d. Examine in the live animal the main lymph nodes, for example, the mandibular, prescapular, prefemoral, popliteal and supramammary lymph nodes.
- e. Recognise various drugs e.g. an antibiotic, anti-inflammatory, oxytocin, oestrogen, etc. and tell when or under what circumstances they could be used
- f. Recognise a dipping remedy and calculate dip wash strengths for the various dipping methods.

3. Sampling

Carry out basic post mortem examinations and the collection and submission of

samples for microbiological, toxicological, histopathological and serological investigation.

- a. Prepare a blood and or brain smear from a cow, horse, sheep, goat or dog
- b. Collect specimens from PM for bacteriology, toxicology, serology and histopathology, e.g. liver, kidney and fix in formalin including collection of faecal samples.
- c. Collect handle and transport sheath wash samples

4. Disease prevention

Implementation of vaccination programs in livestock, in order to prevent, and/or control animal diseases and to strive towards establishing a disease-free animal population and to administer these vaccines.

Implementation of parasite control programs in livestock, in order to prevent, and/or control animal parasites and to strive towards establishing a parasite free animal population.

- a. Calculate dosages of drugs based on live mass of animal and give an intramuscular, intravenous and/or subcutaneous injection in the various locations, i.e. tail vein, jugular, etc.
- b. Pass a stomach tube in a cow and be able to use a dosing gun
- c. Restrain sheep and goats for vaccination, examination of feet and trimming using a hoof knife or hoof trimmer

5. Primary Animal Health Care

Provide extension services (including training and education) to farmers, community members and their children, to protect and promote the health and well-being of animals.

- a. Put a nose tong (nose lead) in the nose of a cow
- b. Attend to a swelling on an animal that is suspected of being an abscess or a septic wound
- c. Perform dehorning, branding and/or castrations.

6. Jurisprudence

Knowledge of relevant acts pertaining to animal health. Able to implement parts of these acts.

- a. Animal Diseases Act
- b. Meat Inspection Act
- c. Animal Improvement Act
- d. Permit control

7. Extension services

- a. Organise farmer's days and prepare and present lectures on different animal diseases of importance at these days as well as at personnel meetings.
- b. Visit schools in the region and inform them regarding rabies and relevant diseases
- c. Perform extension service to local farmers at dip tanks

8. General knowledge

- a. Recognition and correct use of the equipment of importance to the AHT.
 - i. McIntock Syringes
 - ii. Burdizzo
 - iii. Hot dehorning bolt
 - iv. Hoof trimmer for small stock
 - v. Hoof trimmer for large stock
 - vi. Hoof knife
 - vii. Trocar and cannula
 - viii. Dosing gun/dosing syringe
 - ix. Nose tongs
 - x. Different gauges and lengths of hypodermic needles and what they are used for.
 - xi. Different sizes of syringes and what they are used for.

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[VC/EDUC/DAY 1 SKILLS_version 1]**

SAVC DAY 1 SKILLS FOR THE VETERINARY PHYSIOTHERAPY PRACTITIONER

PROFESSIONAL SKILLS

Practice management

1. Practitioners need to show ability to manage and implement the following appropriately:
 - a. Financial management
 - b. Marketing
 - c. Operation management
 - d. Strategic planning
 - e. Financial planning
 - f. Leadership assessment and development
 - g. Negotiation skills
 - h. Career opportunities and diversity
 - i. Group skills and cultural diversity
 - j. Veterinary Law and Ethics
 - k. Human animal bond
 - l. Stress management
 - m. Conflict management

Communication

1. Communicate effectively with people verbally:
 - a. Owners
 - b. Animal health team colleagues
 - c. Inter-professional colleagues
 - d. General public
2. Communicate in written reports to:
 - a. Owners
 - b. Animal health team colleagues
 - c. Inter-professional colleagues
 - d. General public
3. Prepare and maintain clear and accurate records for different purposes:
 - a. Patient records and reports
 - b. Referral letters
 - c. Insurance reports (only if required from the referring veterinarian)
 - d. Academic and scientific articles
 - e. Accounts
4. Adapt language forms and styles to the audience and the context
5. Actively listen to people, taking account of non-verbal cues-this is a learned skill that is generally not assessed at university level.
6. Take account of any communication differences that people might have:
 - a. Disabilities
 - b. Sensory Impairment
 - c. English as a second language
 - d. Different Cultures

e. Different Religions

7. Convey appropriate sympathy and empathy in verbal and non-verbal communications with people
8. Contribute to the facilitation of clearer communication between people
9. Have an understanding on how to handle conflict situations through negotiation
10. Communicate Health and Safety risks to people, verbally and by displaying notices
11. Record, store and retrieve information using appropriate information technology systems
12. Provide information in a manner and at a pace that enables clients to make informed decisions
13. Obtain written and verbal informed consent

Legal, Ethical and Moral Practice

- a. Comply with the legal requirements of practicing as a Veterinary Physiotherapy Practitioner in terms of the various acts and laws that govern animal use and practise:
 - Veterinary and para-veterinary professions Act
 - Animal protection Act
 - Animal diseases Act
 - Animal performance Act
 - Animal welfare Act
 - Medicine control Act
 - Occupational, health and safety Act
- b. Conduct that is professional both in communication and appearance
- c. Maintain high standards and act ethically and according to acceptable moral guidelines at all times
- d. Ensure that your conduct is aligned with professional, moral and ethically accepted standards
- e. Inform people where necessary, that action is outside your legitimate competency boundaries
- f. Recognise and work within personal limitations
 - Seek advice, assistance and support when necessary
 - Have an understanding for balancing personal and professional life
 - Understand and use time management principles
 - Understand the personal and emotional factors on your professional practice
 - Recognise and work within economic limitations/restraints

Continued Professional Development

1. Demonstrate a commitment to maintaining your professional competence in response to the developing scientific field and professional demands.
 - a. Have the basic understanding of self-audit activities using peers and other people
 - b. Be able to identify your limitations in competence and take appropriate action to

- remedy such incompetence, maintain and update knowledge and skills
- c. Gather and maintain evidence of professional development as part of lifelong independent learning
- d. Record continued professional development.
- e. Share knowledge willingly with colleagues to enhance the growth of the profession

Professional Practice

1. Management of Veterinary Environment
 - a. Be familiar with and work within Health and Safety requirements and local risk factors
 - b. Contribute to maintenance of workplace hygiene
2. Undertake appropriate infection-control procedures
3. Have an understanding of occupational safety to the extent given by health and safety requirements of Department of Labour
4. Understand how to deal with and work with people's disabilities and special requirements
5. Use and maintain protective clothing and equipment
6. Utilise knowledge of Zoonoses
7. Be aware of own Body Mechanics and know how to work ergonomically
8. Work collaboratively with others to promote a problem-solving approach to issues within the veterinary environment. Including the ability to:
 - Recognize their own shortcomings, limitations and appropriately refer patients
 - Ensure relevant information is available to colleagues unless specifically prohibited to do so by the patient's owner
 - Maintain client/patient confidentiality
 - Report back to referring veterinarian and other colleagues

Evaluation of Animals and their Care

1. Handling and restraint
 - a. Assess animal behaviour and environmental factors when approaching and handling animals
 - b. Ensure appropriate hygiene procedures are followed before and after handling animal(s)
 - c. Restrain, move and lift animal(s) using approved manual handling and lifting techniques
 - d. Select and wear protective clothing to protect oneself and others from injury
 - e. Restrain animals for a range of situations balancing safety of self and others with the welfare of animal(s)

- f. Educate assistants in the techniques for safe handling and restraint of animals
- g. Lead and move animals - using the appropriate equipment
- h. Safely use a range of restraining devices such as muzzles, halters, gloves, etc
- i. Take account of species and environmental factors when handling neonates

Gathering Information

1. Determine referring veterinarian and reason for consultation
2. Determine reason/s for the consultation
3. Establish rapport with client and animal taking account of the particular communication needs
4. Structure the consultation into a logical sequence
5. Gather relevant information on animals
6. Gather relevant information on husbandry practices
7. Use appropriate questions and focus on history-taking and obtain full and accurate information
8. Use a range of sources of information to obtain a full and accurate case history
9. Summarise the consultation ensuring that the client understands the conclusions you have reached and the next action to be taken
10. Summarise and record relevant case details and history for storage and retrieval by others
11. Demonstrate and apply skills that enable the Practitioner to proficiently undertake the functions expected including:
 - a. literacy and numeracy,
 - b. relevant computer skills and utilisation of modern information technology,
 - c. critical and analytical thought,
 - d. clinical reasoning,
 - e. problem-solving,
 - f. finding, utilising and managing information,
 - g. well-developed observational skills,
 - h. adaptation to change, and
 - i. making valid judgments and deductions on the basis of available evidence and information.

ANATOMY

Basic anatomy knowledge

1. Students must have a basic knowledge of anatomy but are not expected to have an expanded or in-depth knowledge of all systems (e.g. gastrointestinal, urogenital and respiratory systems)

Advanced anatomy knowledge

2. Students are expected to have an advanced and working knowledge of the systems directly involved in their core curriculum.
1. Osteology (advanced knowledge)
 - identify each bone in the skeletal system
 - identify the different sections of a long bone
 - describe every bony prominence, fossa, foramina and other bony landmarks
 - recognise the difference between a mature and immature bone
 - identify and indicate by palpation every palpable bony prominence in the live animal
2. Myology (advanced knowledge)
 - know and identify every muscle in the body (except all muscles of the head and reproductive system)
 - origin, implantation and nerve supply of every muscle in the body
 - classify the function/effect of every muscle
 - identify every muscle on a dissection, indicate it on a skeleton and identify its location on a live animal
 - all synovial structures and their significance
 - muscle types in the body
3. Gastrointestinal system
 - basic knowledge of the anatomy and able to identify the different organs
4. Respiratory system
 - basic knowledge and able to identify the relevant organs
5. Cardiovascular and respiratory systems
 - basic knowledge of the anatomy of the heart, major arteries and veins and lymphatic system
6. Urinary system
 - basic knowledge of the anatomy and able to identify the different organs
7. Neurology
 - basic knowledge of anatomy of the central nervous system
 - advanced knowledge of the peripheral nervous system
 - basic knowledge of the autonomic nervous systems
8. Integument
 - basic knowledge of the anatomy of the integument of mammals and hoof of the horse

CONFORMATION

Advanced knowledge of general conformation of canine and equine, including hoof conformation in the horse

1. Advanced knowledge and be able to extrapolate/project the effect of less than ideal conformation and the pathologic impact on the musculoskeletal system

HOOF IMBALANCES AND FARRIERY

1. Recognise/identify major imbalances in the hoof and know how they can affect the biomechanics of the upper limb and body
2. Refer the owner for appropriate care to a veterinarian and/or farrier

BASIC AND PERFORMANCE NUTRITION

1. Basic/working knowledge of the composition of rations
2. Classify body condition scoring
3. Recognise major nutritional disturbances and how they may affect the performance of the animal
4. Recognise limitations and refer owners to a nutritionist

DENTISTRY

1. Basic knowledge of the intra-oral cavity and dental composition
2. Recognise major dental pathologies and how it may affect the performance of the animal
3. Refer owners to Veterinary Dentists, Veterinarians or qualified Dental Technicians

TACK

Practitioners must have a thorough theoretical and practical knowledge of all tack used in all disciplines of patients

1. Practitioners must recognise the importance of correctly fitted tack and the consequences of ill-fitting tack
2. Practitioners should refer clients to the appropriate team member to rectify the ill-fitting tack

EMERGENCY CARE

1. Basic knowledge of life-threatening situations, such as arterial bleeding, and be able to perform a life-saving procedure
2. Ophthalmic emergencies
3. Respiratory emergencies
4. Colic in horses
5. Gastric volvulus dogs
6. Wounds that threaten the long-term function e.g. wounds in the vicinity of synovial structures
7. Application of a compressive bandage in case of an emergency
8. Know limitations and refer owners to the attending veterinarian
9. Know and be able to perform basic CPR on any patient

VETERINARY TERMINOLOGY

Familiar with all relevant veterinary terminology

EQUINE PATHOLOGICAL CONDITIONS

Basic knowledge of equine pathological conditions relevant to the Veterinary Physiotherapy plan

CANINE/FELINE PATHOLOGICAL CONDITIONS

Basic knowledge of canine/feline pathological conditions relevant to the Veterinary Physiotherapy plan

EQUINE SURGICAL CONDITIONS

Basic knowledge of equine surgical conditions that can benefit by post-operative physical rehabilitation in consultation or referral by the surgeon

CANINE/FELINE SURGICAL CONDITIONS

Basic knowledge of canine/feline surgical conditions that can benefit by post-operative physical rehabilitation in consultation or referral by the surgeon

IMAGING

1. Basic knowledge of the different imaging techniques, their advantages and limitations

- o Radiology
- o Ultrasound
- o MRI
- o CT
- o Scintigraphy
- o Thermography

2. Be familiar with imaging terminology and reports

ANIMAL PHYSIOLOGY

1. Basics of the structure and function of a typical animal cell
2. Basic knowledge of chemical messengers and intercellular communication
3. Basics of the major body fluid compartments in terms of chemical composition and homeostasis
4. Basics of endocrine physiology
5. Advanced knowledge of the function and structure of the central nervous system
6. Advanced knowledge of neurophysiology
7. Advanced knowledge of the physiology of bone and joints
8. Advanced knowledge of the structure of muscle
9. Advanced knowledge of muscle physiology
10. Advanced knowledge of the stages of healing of the neuro musculoskeletal system
11. Knowledge of the cardiovascular and respiratory systems as it relates to Veterinary Physiotherapy
12. Basic knowledge of the blood components and blood forming organs
13. Basics of the cardiovascular and lymphatic systems

14. Basics of the respiratory system relevant to exercise physiology
15. Basics of the gastro-intestinal system relevant to nutrition
16. Basics of the urinary system
17. Basics of thermoregulation

Specific Veterinary Physiotherapy Examinations

1. Subjective assessment

- a. Practitioners must be able to conduct a subjective evaluation in an appropriate and professional manner
- b. The information gained should include:
 - i) Attending members of veterinary team
 - ii) Age, breed, sex, body score, weight, discipline, food, supplements
 - iii) Living environment
 - iv) Previous medical condition
 - v) Current medical condition (including mechanics of injury, stages of healing, medication prescribed by veterinarian, diagnostics done by veterinarian, current behaviour of symptoms, behaviour changes in patient)
- c. Practitioners must be able to use their clinical reasoning skills to plan an appropriate and safe objective assessment from the knowledge gained from the subjective evaluation.

2. Objective assessment

- a. Practitioners must be able to conduct an objective evaluation safely. They must be able to adjust the evaluation according to their findings and omit inappropriate tests and recognise red flags to re-refer back to the attending veterinarian.
- b. RED FLAGS - Red flags are warning signs that suggest that veterinarian referral may be warranted. It is a term describing the ability to identify dangerous or potentially dangerous findings in the history or examination. Practitioners should be aware of these warning signs and know where to send the patients next. Some of the warning signs can be, but is not limited to:
 - i) Unexplained bodyweight loss
 - ii) Loss of appetite or in-appetance
 - iii) Lethargic
 - iv) Signs of illness such as vomiting, increased temperature
 - v) Previous history of tumours
 - vi) Acute, severe pain and swelling
 - vii) Dysfunction of bladder and bowel
 - viii) Undiagnosed neurological signs
 - ix) Suspected zoonoses
- c. **Conformation**
 - i) Be able to recognise and discuss conformational traits in companion animals in depth
 - ii) Recognise and discuss potential dysfunction that can arise from specific conformational traits
 - iii) Recognise and discuss companion animal conformation that will enhance

- performance in sport specific activities
- iv) Recognise which conformational faults can be addressed by Veterinary physiotherapy intervention

d. Gait assessment

- i) Practitioners must be able to perform a gait assessment for companion animals including:
- (1) Walking, trotting in straight lines
 - (2) Walking, trotting in circles
 - (3) Using different terrain/surfaces
 - (4) Special tests – ridden evaluation, rein back, lunging, long lining, slopes, coordination specific exercises, sport specific gait
- ii) During this evaluation Practitioners must be able to recognise and identify
- (1) Specific limb lameness
 - (2) Grade the lameness
 - (3) Altered gait patterns
 - (4) Gait dysfunction patterns
 - (5) Axial skeleton altered patterns
 - (6) Practitioners MUST recognise their limitations in dealing with an obvious lameness and refer the client to other members of the animal health team.
- iii) After the gait assessment the Practitioner should be able to clinically reason and decide on potential areas and structures that could be affected.

e. Joint assessment

- (1) Please also refer to Manual Therapy
 - (2) Practitioners should be able to evaluate each joint for (including the axial Skeleton)
 - (a) Pain
 - (b) Reduced range of motion
 - (c) Quality of movement
 - (d) Swelling/Heat/Thickening
 - (e) End of Range feeling
 - (3) Practitioners will evaluate the joints by using
 - (a) Passive physiological joint movements
 - (b) Passive accessory joint movements
 - (c) Active and active assisted joint movement
 - (4) Practitioners should be able to conduct the following joint specific tests:
 - (a) Cranial drawer test
 - (b) Ortolani test
 - (c) Barlow and Barden test
 - (5) After the assessment Practitioners should be able to clinically explain his/her findings.
- ii) **Axial skeleton assessment**
- (1) Practitioner should be able to evaluate the axial skeleton including the

- (a) Temporo-mandibular joint
- (b) Cervical, Thoracic, Lumbar, Sacrum and Caudal vertebrae
- (c) Costo-vertebral joint
- (d) Costo-sternal joint
- (e) Sacro-iliac joint
- (2) Evaluation techniques will include
 - (a) Functional activities
 - (b) Active and active assisted movements
 - (c) Passive physiological movements (where applicable)
 - (d) Passive accessory movements
- (3) Practitioners should be able to evaluate each joint for: (including the axial skeleton)
 - (a) Pain
 - (b) Reduced range of motion
 - (c) Quality of movement
 - (d) Swelling/Heat/Thickening
 - (e) End of Range feeling
- f. **Soft tissue assessment**
 - i) Practitioners should be able to evaluate soft tissue for:
 - (1) Temperature
 - (2) Soft tissue irritability
 - (3) Muscle spasm/hypertonicity/hypotonicity
 - (4) Bony anomalies
 - (5) Soft tissue thickening/tightness/swelling
 - (6) Pain responses
- g. **Neural tissue assessment**
 - i) Practitioners should be able to recognise neurological symptoms and adapt their evaluation which should include (specific to canine/feline and equine as appropriate):
 - (1) Functional test
 - (2) Co-ordination tests
 - (3) Knuckling test
 - (4) Paper- slide test
 - (5) Tail pull test
 - (6) Placing reactions
 - (7) Hopping test
 - ii) Practitioners should be able to conduct and interpret the following neural tissue assessments
 - (1) Spinal reflexes and lower motor reflexes for canine patients
 - (2) Panniculus reflex
 - (3) Perineal reflex
 - (4) Cross extensor reflex & Schiff-Sherrington reflex
 - iii) Practitioner should be able to differentiate between ataxia and weakness
 - iv) Practitioners should recognise atrophy and specific neural outfall
 - v) Practitioners should be able to determine level of neurological impairment (peripheral nerve, spinal cord, brain, upper motor neuron lesion, lower

- motor neuron lesion)
- vi) Practitioners should re-refer patient to veterinarian for definitive diagnosis
- h. Functional assessment**
- i) Practitioners should include tests to determine patient's ability to do certain functions
 - ii) Practitioners should recognise
 - (1) altered recruitment patterns
 - (2) altered motor control patterns
 - (3) adaptive pattern
 - (4) specific lacking elements of movement which should be re-educated
- i. Sport specific assessment**
- i) Practitioners should be able to assess each patient within their specific discipline. They should be able to recognise all of the above within each sport specific case.

Reaching functional physical rehabilitation conclusion and formulating Treatment Plan

1. Have a clear, logical and appropriate therapeutic approach to the common clinical signs that occur in Veterinary Physiotherapy Practice
2. Formulate a rational approach to a treatment program taking into account owner preferences and any financial constraints
3. Formulate a treatment plan that takes account of the inter-relationship of animal specific, financial and any other significant factors
4. Report back to referring veterinarian and get appropriate approval if required
5. Make appropriate referrals supported by evidence

Veterinary Physiotherapy Treatments

1. Specific soft tissue mobilisations

- a. Practitioners should be able to demonstrate and apply all soft tissue techniques (massage) to companion animal patients
- b. Practitioners should have a sound knowledge of indications, contra-indications and precautions
- c. Practitioners should be able to adapt treatment according to the phase of healing and the patients' tolerance and preference
- d. Practitioners should be able to discuss the effects of each soft tissue technique including the physiological effects
- e. Practitioners should be able to implement these techniques safely into a rehabilitation and maintenance program.

2. Stretching

- a. Practitioners should be able to demonstrate and effectively apply stretches to all and specific muscle groups.
- b. Practitioners should have a sound knowledge of indications, contra-indications and precautions
- c. Practitioners should be able to adapt treatment according to the phase of healing and the patients' tolerance and preference

- d. Practitioners should be able to discuss the effects including the physiological effects of stretching
- e. Practitioners should be able to implement these techniques safely into a rehabilitation and maintenance program.

3. Manual Therapy

- a. Practitioners should be able to apply all joint mobilisation techniques according to Maitland, Kaltenborn and Mulligan – adapted to the veterinary field
- b. These techniques must be applied to the limb joints as well as the axial skeleton
- c. Practitioners should be able to discuss and select the appropriate mobilisation according to:
 - i) Specific movement (physiological vs accessory)
 - ii) Specific amplitude
 - iii) Specific grade
 - iv) Specific repetition/doses
- d. Practitioners should have a sound knowledge of indications, contra-indications and precautions
- e. Practitioners should be able to adapt treatment according to the phase of healing and the patients' tolerance and preference
- f. Practitioners should be able to discuss the effects including the physiological effects of manual therapy techniques
- g. Practitioners should be able to implement these techniques safely into a rehabilitation and maintenance program

4. Electrotherapy

- a. Electrotherapy modalities will include:
 - i) TENS – Trans cutaneous electrical nerve stimulation
 - ii) EMS/NMES – Electrical muscle stimulation, Neuro muscular electrical stimulation
 - iii) Faradic
 - iv) Therapeutic Ultrasound
 - v) Therapeutic Laser
 - vi) Light Therapy
 - vii) Pulsed Magnetic Therapy
 - viii) Static Magnetic Therapy
 - ix) Cryotherapy/ Heat
- b. Practitioners should be able to demonstrate and effectively apply all electrotherapy modalities.
- c. Practitioners should have a sound knowledge of indications, contra-indications and precautions.
- d. Practitioners should be able to adapt treatment according to the phase of healing and the patients' tolerance and preference.
- e. Practitioners should be able to discuss the effects including the physiological effects of each modality.
- f. Practitioners should be able to implement these techniques safely into a

rehabilitation and maintenance programme.

5. Exercise Rehabilitation

- a. Practitioners should be able to demonstrate and effectively perform specific therapeutic exercises to achieve specific effects.
- b. Practitioners should have a sound knowledge of indications, contraindications and precautions.
- c. Practitioners should be able to adapt treatment according to the phase of healing and the patients' tolerance and preference.
- d. Practitioners should be able to discuss the effects of each therapeutic exercise.
- e. Practitioners should be able to implement these techniques safely into a rehabilitation and maintenance program.
- f. Some apparatus that can be implemented as part of a therapeutic exercise
 - i) Theraband
 - ii) Weights
 - iii) Kinesio tape
 - iv) Long lining
 - v) Lunging
 - vi) Cavaletti poles
 - vii) Balance/wobble boards
 - viii) Peanut balls
 - ix) Body wraps
 - x) Proprioceptive tools

6. Hydrotherapy

- a. Practitioners should be able to demonstrate and safely implement a hydrotherapy program for the companion animal patient
- b. Practitioners should have a sound knowledge of indications, contraindications and precautions
- c. Practitioners should be able to adapt treatment according to the phase of healing and the patients' tolerance and preference
- d. Practitioners should be able to discuss the effects including the physiological effects of hydrotherapy
- e. Practitioners should be able to implement these techniques safely into a rehabilitation and maintenance program according to the specific diagnosis given by veterinarian.
- f. Practitioners should know when swimming therapy is appropriate
- g. Practitioners should know when underwater treadmill therapy is appropriate
- h. Practitioners should know how to manage water quality in all hydrotherapy settings

7. Respiratory treatments

- a. Practitioners should be able to apply specific basic respiratory techniques to companion animal patients suffering from specific lung pathologies.
- b. Such technique can include:

- i) Shaking
- ii) Vibrations
- iii) Percussions
- iv) Specific drainage positions
- v) Nebulising
- c. Practitioners should have a sound knowledge of indications, contra-indications and precautions
- d. Practitioners should be able to adapt treatment according to the phase of healing and the patients' tolerance and preference
- e. Practitioners should be able to discuss the effects including the physiological effects of these techniques

8. Orthotics and prosthetics

- a. Practitioners should be able to recognise the need for equipment and orthotics that might assist in the rehabilitation program or improve the quality of life.
- b. Practitioners should understand the basics of orthotics, but specific measurements and manufacturing of these devices will be covered in post graduate work.
- c. Equipment can include but not exclusive to only:
 - i) Walking harnesses
 - ii) Slings
 - iii) Anti-slip boots
 - iv) Joint braces – neoprene and "jointed" braces
 - v) Splints
 - vi) "Wheelchairs"
 - vii) Neck and spinal braces

Case loads

Practitioner must have a thorough theoretical and practical knowledge of each of the following case types. Post-surgical protocols of each case would have been covered, but Practitioners must be able to adapt the protocol to each individual client to gain the appropriate outcomes indicated in each case.

1. Orthopaedics

a. Post-surgical cases

- i) Canine (including but not exclusive to) : Cruciate surgery (intra and extra capsular, TPLO- tibial plateau levelling osteotomy, TWO- tibial wedge osteotomy and other surgical procedures), patella luxation surgery, femoral head osteotomy, triple pelvic osteotomy, ulna osteotomy, joint arthroscopies, juvenile pubic symphysiodesis, hemi- laminectomy, other spinal surgeries, fracture repairs, total hip replacements, joint arthrodesis, muscle repair, bite wound repair, abdominal surgery indicated for therapy
- ii) Equine (including but not exclusive to): fracture repairs, chip removal, soft tissue repair, desmotomy
- b. Practitioners must be able to assess each case, discuss with the veterinarian the protocol, formulate an appropriate treatment plan and implement the plan.

Practitioners must re-asses at each treatment and adapt the treatment plan as appropriate.

c. Degenerative joint disease

- i) Practitioners must have a thorough theoretical and practical knowledge of each of the following case types
- ii) Including but not exclusive to: osteoarthritis, hip dysplasia, elbow dysplasia (united anconeal process, medial fragmented coronoid process, subchondral bone cyst, OCD – osteochondrosis dessicans, lesions, joint incongruity), cruciate disease, joint degeneration, spondylosis, facet joint degeneration.
- iii) Practitioners must be able to assess and discuss appropriate management with the attending Veterinarian or other applicable animal health team member
- iv) Practitioners must compile a treatment as well as a maintenance programme for each individual client and appropriately adapt it at any time indicated in re-assessment

d. Soft tissue injuries (including muscle, ligament, tendon, fascia and nerves)

- i) Practitioners must have a thorough theoretical and practical knowledge of each of the following case types
- ii) Including but not exclusive to: muscle strains/tears, ligament tears/sprain, tendon tears/strain, tendonitis, tendosynovitis, desmitis, muscle contractures, neuropraxia, axonotmesis, neurotmesis, peripheral neuropathy, DOMS-delayed onset muscle soreness, Exertional Rhabdomyolysis
- iii) Practitioners must be able to assess and discuss appropriate management with the attending Veterinarian.
- iv) Practitioners must compile and implement a treatment as well as a maintenance program for each individual client and appropriately adapt it at any time indicated in re-assessment

e. Sports injuries

- i) Practitioners must have a thorough theoretical and practical knowledge of each of canine and equine disciplines and the injuries most commonly associated with them.
- ii) Practitioners must be able to assess and discuss appropriate management with attending veterinarian.
- iii) Practitioners should recognise contributing factors in training or execution of discipline which could contribute to re-injury and adapt the training program to avoid this.
- iv) Practitioners must compile and implement a treatment as well as a maintenance programme for each individual client and appropriately adapt it at any time indicated in re-assessment.
- v) Practitioners must be able to implement a programme to reduce the risk of injuries for each individual client.

f. Geriatric patient

- i) Practitioners must have a thorough theoretical and practical knowledge of problems and dysfunction that develop with old age, also in conjunction to the discipline of each patient.
- ii) Practitioners must be able to assess and discuss appropriate management with the attending veterinarian.
- iii) Practitioners should recognise contributing factors in daily living and current training programme that can aggravate the process of aging and implement changes as to slow the pathology or to maintain a good quality of life.
- iv) The Practitioners must compile and implement a treatment as well as a maintenance program for each individual client and appropriately adapt it at any time indicated in re-assessment.

2. Neurology

- i) Practitioners must have a thorough theoretical and practical knowledge of neurological signs, symptoms and dysfunction.
- ii) Practitioners must be able to assess and discuss appropriate management with the attending veterinarian. Practitioners must be able to adapt evaluation to be safe for the patient and people.
- iii) The Practitioners must compile and implement a treatment as well as a maintenance programme for each individual client and appropriately adapt it at any time indicated in re-assessment.
- iv) Practitioners must recognise the need for other handling equipment needed for the patient and the owner (walking harnesses, anti-slip boots, nappies, slings, "wheelchairs", orthotics)
- v) Practitioners must also be able to advise owners appropriately how to ensure their own safety and health in handling neurologically impaired patients.

b. Canine

i) Specific cases can include but are exclusive to:

- (1) Intervertebral disc disease type I and type II
- (2) Fibrocartilaginous embolism
- (3) Brain injury
- (4) Caudal vertebral malalignment/wobblers
- (5) Vertebral malformations
- (6) Tumors affecting spinal cord or brain
- (7) Neuropraxia, axonotmesis, neurotmesis, peripheral neuropathy
- (8) Upper motor neuron lesion, Lower motor neuron lesion
- (9) Trauma resulting in neurological impairment
- (10) Viral diseases leading to neurological impairment (therapy to focus on regaining function post viral condition)
- (11) Meningitis, myasthenia gravis, encephalitis, degenerative myelopathy, seizures, dementia etc

c. Equine

- (1) Neuropraxia, axonotmesis, neurotmesis, peripheral neuropathy
- (2) Upper motor neuron lesion, Lower motor neuron lesion
- (3) Brain impairment
- (4) Caudal vertebral malalignment
- (5) Viral diseases – (encephalitis, meningitis and others)

3. Cardiorespiratory

- i) Practitioners must have a thorough theoretical and practical knowledge of therapy indicated respiratory signs, symptoms and dysfunction.
- ii) Practitioners must be able to assess and discuss appropriate management with the attending veterinarian. Practitioners must be able to adapt evaluation to be safe for the patient and people.
- iii) Practitioners must compile and implement a treatment as well as a maintenance programme for each individual client and appropriately adapt it at any time indicated in reassessment.
- iv) Cases can include but not exclusively only:
 - (1) Post-surgical respiratory dysfunction
 - (2) Pneumonia
 - (3) Brachycephalic type dog respiratory track dysfunction
 - (4) Upper respiratory tract obstruction
 - (5) Intensive Care Unit patients and ventilated patients

Stable management

1. Practitioners will have an understanding of how stables are safely and professionally managed
2. Practitioners will be able to recognise factors contributing to a horse's dysfunction relating to the stable yard, training arenas, training equipment, food buckets, camps, terrain etc.

Care and Treatment

1. Emergency Care and Treatment
 - a. Provide basic first aid treatment
 - i) For animals in emergency situations
 - ii) For human beings in emergency situations

Husbandry and Welfare

1. Develop collaborative relationships with clients to encourage good husbandry practice
2. Collaborate with client to identify and resolve husbandry issues
3. Ensure clients are aware of the principles of animal welfare and good husbandry practice
 - a. Advise on appropriate environmental and housing conditions
 - b. Recognise behavioural needs of animals and refer.
 - c. Advise on prevention of appropriate physiotherapeutic conditions and promotion of well-being
 - d. Recognise feeding and nutritional needs of animals and refer
 - e. Ensure animal(s) have freedom from distress and pain

- f. Ensure clients are aware of relevant legislative frameworks
- g. Support good husbandry practice
- h. Calculate energy needs and food quantities from basic principles
- i. Advise on selection of specialist dietary requirements (within limits of education)
 - i) For nutritional deficiencies
 - ii) During particular life-stages
 - iii) For specific orthopaedic conditions
- j. Perform basic husbandry techniques
- k) Put on stable rug, horse boots
- l) Assemble and fit Elizabethan collar

Bandages

- 1. Apply and manage bandages
 - i) Forelimb, hind limb, Robert-Jones, splint, stable, exercise
- 2. Advise clients on re-application of bandages

Research, Industry and Science

- 1. Understand the basic requirements of structured research and the process involved in setup a trial.
- 2. Be able to read, understand and formulate questions after reading a journal article.
- 3. Be able to formulate a concept of humane treatment of research animals.

Hygiene

- 1. Basic understanding of aseptic techniques
- 2. Implement personal hygiene and clinic hygiene protocols
- 3. Understand the basic risks and prevention of contagious or infections conditions.

**[Council accepted: 20 – 21 October 2015]
[REF: VC/EDUC/DAY 1 SKILLS_version 1]**

SAVC DAY 1 SKILLS FOR THE VETERINARY TECHNOLOGIST

GENERAL LABORATORY PRACTISE

- Understanding and knowledge of basic laboratory rules
- Understanding of basic principles of quality control
- Correct and appropriate receipt, handling, labelling and storage of samples
- Follow instructions according to Standard Operating Procedures
- Conduct work practices in an ethical and professional manner and in accordance with relevant legislation, regulation and codes of practice
- Understanding of use, cleaning, maintenance and calibration of laboratory equipment
- Understanding of laboratory safety and biohazards
- Maintain security, integrity, traceability and identity of samples, sub-samples and work records
- Set up and use a microscope correctly (Inverted / stereo and light microscopes)
- Work with zoonotic and infectious diseases protecting yourself and the public
- Basic sample administration under supervision

MICROBIOLOGY

- Understand the process of media preparation and be able to follow the preparation instruction of basic media.
- Work with aseptic techniques
- Pour plates and use the correct methods to streak bacteria cultures
- Incubate plates under suitable atmospheric and temperature conditions
- Isolate and identify common causative agent (pathogen)
- Understand and use the most applicable biochemical and physiological techniques for the identification of reference bacteria
- Staining and microscopic examination of basic isolates
- Understand the principle of the anti-biogram test and be able to set up an anti-biogram plate

HISTOLOGY

- Receive and handle the histology specimen correctly.
- Know what the macroscopic evaluation of the specimen include.
- Understand the principles of Tissue processing.
- Know how to embed tissue samples in paraffin wax.
- Cut 5 micron sections from tissue blocks.
- Stain the sections with the Haematoxylin and Eosin staining method.
- Perform special staining techniques to demonstrate:
 - Carbohydrate, mucin and glycogen using Periodic Acid Schiff's staining.
 - Gram stain
 - TB using Ziehl-Neelson staining.
- Set up and use a microscope correctly to evaluate stained slides against control slides.

HAEMATOLOGY

- Understand the basic use of a Haematology analyser(semi and fully automated)
- Correct use of a dilution pipette for manual cell counting methods (basic manual haematocrit)
- Correct use of Pasteur and other pipettes
- Preparation of wedge and thick blood smears
- Staining and evaluation (Red and white cell morphology) of blood smears
- Performing manual cell counts – Neubauer counting chamber
- Set-up of Winthrobe ESR (Erythrocyte Sedimentation Rate)
- Understand the principle of White blood cell differential count (Identification of Thrombocytes, Red and White blood cells as well as blood parasites)
- Basic principles an automated haematology cell counter / instruments
- Performing and obtaining micro-haematocrit values with micro-haematocrit centrifuge

BIOCHEMISTRY

- Understanding the application of the sampling materials (tubes for specific tests)
- Aliquot of serum and plasma
- Scoring of sample condition
- Pipetting of serum and plasma
- Understanding the rationale of tests being performed
- Understanding the method of testing used and the rules that apply (e.g. Spectrophotometer and ion selective electrodes as well as colorimetric principals)
- Quality control and adjustments of calibration curves
- Ensure reliability of results

VIROLOGY

- Inoculation of embryonated eggs via the Allantoic Sac route for viral enumeration
- Candling of eggs to differentiate between dead and alive
- Aseptic harvesting of egg allantoic fluids
- Slow speed centrifugation with bench top centrifuge
- Perform HI and HA under guidance

SEROLOGY

- Use of pipette, single channels and multi-channels
- Preparation of Buffers and test reagents:
 - Calculations: understand and performing of basic calculations

- Adjusting of pH's of buffers
- Setting up of microscopes
- Using of bench top centrifuges
- Able to perform ELISA tests under guidance

ENTOMOLOGY

- Fixation and preservation of arthropod samples
- Preparation of mounts and pinning of insects and acarines
- Identification of ecto-parasites to genus level:
 - Ticks
 - Flies
 - Mites
 - Lice

PROTOZOLOGY

- Evaluation of samples for valid testing
- Preservation and transportation of parasitic material
- Preparation of solutions used for parasitological examinations
- Blood smears for examination, identification and quantification
- Coccidia flotation tests
- Identify the most common protozoa to genus level

HELMINTOLOGY

- Evaluation of samples for valid testing
- Perform McMaster faecal egg count
- Visser filter method for eggs examination
- Faecal flotation
- Bearmann's technique and faecal culture
- Calculations: FERT, EPG, reagent preparation and larval number estimation
- Staining, dehydration and mounting of samples
- Identification of common nematode, trematode and cestode parasites of sheep and cattle to genus level

MOLECULAR BIOLOGY

- Understand the hazards and risks in the molecular biology laboratory
- Be able to accurately pipette small quantities of reagents
- Preparations and dilutions of reagents, primers and nucleotides
- Extraction of DNA and RNA from variety of samples
- Prevent/minimise DNA and RNA contamination
- Set up Polymerase Chain Reaction procedure on a thermocycler
- Prepare agarose gel for electrophoresis
- Perform electrophoresis, read and record results

CELL CULTURE

- Retrieve or obtain the cell lines or tissue sample from fresh or preserved sources and

prepare a culture

- Select specified culture media and add any necessary growth agents or nutrients
- Incubate cells or tissue in specified conditions
- Inoculate the media with the specified amount of sample
- Culture of cell lines and tissue to specifications without contaminating the original sample and the environment
- Monitor growth of tissue and cell lines and products to ensure viability
- Be able to count cells and contaminants and recognising normal and abnormal cells
- Be able to detect contamination
- Passage samples by sub culturing to preserve or grow cell lines
- Harvest cells or cell products to optimise yields
- Storing of cells to ensure viability under supervision
- Maintain records of active and stored tissue and cell lines under supervision

**[Council approved: 26-27 July 2016]
[VC/EDUC/DAT 1 SKILLS_version 2]**

DAY 1 SKILLS FOR LABORATORY ANIMAL TECHNOLOGISTS

Index by section

1. Generic competencies, personal learning and thinking skills*
2. Functional skills*
3. Maintain biosecurity, health, safety and security
4. Handle, move and restrain animals
5. Dispatch, transport and receipt of animals
6. Receipt, storage and providing bedding/nesting material; food and water to animals
7. Care, husbandry, hygiene and management of laboratory animals
8. Ancillary animal facility areas
9. Maintenance of equipment and stores
10. Monitor and maintain the health and welfare of laboratory animals
11. Check the physical condition of a laboratory animal by performing a full systematic clinical observation
12. Animal room and barrier management
13. Animal identification
14. Laboratory animal breeding and colony management
15. Knowledge of legal, ethical, welfare and professional requirements
16. Prepare environment for laboratory animal procedures including theatre management
17. Prepare laboratory animals for procedures
18. Perform clinical procedures on laboratory animals
19. Research / project Management
20. Facility Management (including staff management)
21. People and Professional Skills

NOTE: the definition of competency is based on the South African Qualifications Authority (SAQA) definition, which is threefold and comprises:

- Practical competency (skills*)
- Foundational competency (knowledge)
- Reflexive competency (adaptability)

***SKILLS:** Developed through an appropriate training course or degree program (such as the Institute of Animal Technology (IAT) IAT Level 3 Diploma in Laboratory Animal Science and Technology) in combination with the Work-Integrated Learning Programme approved by the South African Veterinary Council (SAVC).

1. **Generic competencies, personal learning and thinking skills***
 - 1.1. **Communication**
 - 1.1.1. Communicate effectively using visual, mathematical and/or language skills* using verbal and/or written presentation.



- 1.1.2.** Communicate effectively with staff, researchers, students, the public, colleagues and authorities

1.2. Participation

- 1.2.1. Effectively and constructively participate by joining in, becoming involved, and taking a constructive and active part with others

1.3. Teamwork

- 1.3.1. Work effectively with others as a member of a departmental team, research team, organisation, or community.

1.4. Self-management

- 1.4.1. Accept accountability and responsibility for one's own actions
- 1.4.2. Organise and manage oneself and one's activities responsibly and effectively
- 1.4.3. Ensure that your work area /office space is maintained in a tidy, clean and hygienic condition
- 1.4.4. Ensure that all paperwork is managed in a tidy, clean, up to date and well-filed system
- 1.4.5. Ensure that all computer files are managed and up to date in a well-filed system
- 1.4.6. Ensure that all data is recorded immediately and legibly in accordance with good quality management practice and raw data management. That all data is valid, reliable, authentic and sufficient
- 1.4.7. Ensure that performance is efficient and effective
- 1.4.8. Ensure that all work is undertaken in compliance with local Standard Operating Procedures, organisational policy and procedure, national standards and legislation

1.5. Independent enquiry

- 1.5.1. Collect, analyse, organise and critically evaluate information.

1.6. Creative thinking and reflective learning

- 1.6.1. Identify and solve problems in which the responses demonstrate that responsible decisions using critical and creative thinking have been made.
- 1.6.2. Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.
- 1.6.3. Use science and technology effectively and critically, showing responsibility towards the environment and health of others.
- 1.6.4. Be committed to personal career development, maintaining competence and continuous professional development (CPD)

2. Functional skills*

- 2.1. **Note:** these specify entry requirements
- 2.2. Grade 12 or equivalent
- 2.3. English Grade 12 or equivalent (write and read English effectively)
- 2.4. Mathematical literacy (e.g. be able to calculate drug dosages and volumes)

3. Maintain biosecurity, health, safety and security

- 3.1. Select and use the personal protective equipment (PPE) provided, which are appropriate to your daily routine or to the specific task you are performing
- 3.2. Behave in a way which minimises the risk to yourself, others and to the animals
- 3.3. Use equipment and chemicals in accordance with manufacturers' instructions
- 3.4. Adhere to organisational health and safety regulations, procedures and policies
- 3.5. Be aware of what to do in the case of a breach of security / fire / medical incident / accident; and how to report the incident immediately
- 3.6. Take precaution against the transmission of diseases including zoonosis
- 3.7. Maintain security of the workplace
- 3.8. Dispose of various types of waste material (hazardous, toxic, biological, medical, biohazardous) appropriately and safely
- 3.9. Deal with any chemical spillage safely and appropriately: report the incident

4. Handle, move and restrain animals

- 4.1. Wear the necessary personal protective equipment (PPE)
- 4.2. Determine the location and the animal to be moved
- 4.3. Approach animals calmly, quietly and confidently
- 4.4. Identify the sex of the animal(s)
- 4.5. Identify the animal(s)
- 4.6. Carefully remove the animal(s) using correct handling techniques
- 4.7. Animal species that should be competently handled and restrained include those listed in Table 1.
- 4.8. Remove / replace any cage labels, ensuring information is correct
- 4.9. Ensure the new accommodation is appropriate (observe the animal(s) behaviour; especially when re-grouping the animals to ensure compatibility of individuals) and allow sufficient acclimatisation period to new environment
- 4.10. Record the date and sign for tasks
- 4.11. Be able to remove the animal (firstly ensuring its identification) and be able to apply appropriate, gentle and safe restraint, such as to assist in a minor procedure
- 4.12. Be able to use acceptable and appropriate restraint equipment to gently and safely restrain the animal
- 4.13. Record the date and sign for tasks

5. Dispatch, transport and receipt of animals

- 5.1. The transport of animals include:
 - 5.1.1. Transport over short distance

- 5.1.2. Transport between animal rooms in the same building
- 5.1.3. Transport between buildings in the same institution
- 5.1.4. Transport between institutions, by road
- 5.2. Check the details on the animal request form
- 5.3. Check research protocol number for animals dispatched for research
- 5.4. Confirm that the animals are available
- 5.5. Arrange for collection
- 5.6. Prepare the correct transport boxes, including bedding and transport medium
- 5.7. Move animals carefully to the transport box, avoid mixing sexes and mixing incompatible groups of animals in one box
- 5.8. Ensure the transport boxes are secured
- 5.9. Complete all the necessary paperwork, the final dispatch form should be signed
- 5.10. Use reliable and fit for purpose transport for the animals
- 5.11. Pre-prepare appropriate animal accommodation
- 5.12. Upon receipt of the animals, check all the details on the delivery paperwork
- 5.13. Remove the animals one by one from the transport box into the new accommodation
- 5.14. Check for signs of discharge in the transport box; check each animal for any injuries, or signs of disease. Report any problems immediately.
- 5.15. Demonstrate an understanding of the impact of transport on animals including acclimatisation
- 5.16. Provide the new arrivals with fresh water and diet immediately
- 5.17. Complete the animal arrival paperwork
- 6. Receipt, storage and providing bedding / nesting material; food and water to animals**
- 6.1. Monitor and manage the storage conditions of animal diet and report any problems, both in the storage conditions and in the storage bins
- 6.2. Receive newly delivered diet / bedding. Check details of diet type and quantity. Check condition of diet / bedding bags and report any problems, such as mould or pest infestation, or foreign matter.
- 6.3. Handle diet bags so as not to cause damage and ensure rotation of diet in store. Record batch number deliveries and expiry dates, maintain stock records, including delivery date and your signature (or as required by local standard operating procedures).
- 6.4. Ensure you select the correct diet / bedding material for the species, age and reproductive status of animal
- 6.5. Ensure there is always sufficient good quality diet provided for the number of animals in the cage / pen
- 6.6. Ensure there is always sufficient good quality clean bedding provided for the number of animals in the cage / pen
- 6.7. Ensure there is always sufficient clean, fresh potable water provided for the number of animals in the cage / pen
- 6.8. Monitor and maintain all feeding and watering equipment in a clean and fit for use state

- 6.9. Note and report any changes in the feeding / drinking habits of the animals
- 6.10. Note when conducting a cage-clean, and report any abnormalities such as the presence of blood, diarrhoea
- 6.11. Dispose of waste food and bedding correctly
- 6.12. Be able to monitor, record and calculate food and / or water consumption

7. Care, husbandry, hygiene and management of laboratory animals

- 7.1. Demonstrate an understanding of the SANS 10386 document at all times for individual species requirements, including minimum space requirements
- 7.2. Perform the husbandry and care of:
 - 7.2.1. Rats, mice, guinea pigs, rabbit and fish (practical experience is required in all these species)
 - 7.2.2. Large animals for example dogs, cats, sheep, goats, pigs, chickens, primates; with practical experience of at least one (husbandry including species specific behaviour, housing requirements, handling requirements, social requirements, nutrition and care in the captive environment, grooming)
- 7.3. Perform species specific hygiene management
- 7.4. Demonstrate an understanding of cage cleanliness on the health and well-being of animals
- 7.5. Animal accommodation should include group housing and single housing
- 7.6. Animal accommodation should include various types of caging, large animal pens and specialised caging such as individually ventilated cages (IVCs) and isolators
- 7.7. Maintain the correct macro and micro environmental conditions for the animal(s) especially for caged animals
- 7.8. Prepare and check fixtures and fittings such as food hoppers, water bottles, and water bowls
- 7.9. Provide the correct nutrition for the animal(s)
- 7.10. Provide adequate quality water to the animal(s)
- 7.11. Demonstrate an understanding of the impact of nutrition and water quality on research
- 7.12. Provide different types of bedding material to different animal species
- 7.13. Provide the correct nesting material for the animals
- 7.14. Provide environmental enrichment to the different animal species
- 7.15. Wear appropriate personal protective equipment; take appropriate health and safety precautions for yourself and others
- 7.16. Prepare clean animal accommodation in accordance with that particular species' needs. Including appropriate bedding and environmental enrichment materials. Move animals from soiled accommodation to clean accommodation, including the use of cage-changing stations as appropriate
- 7.17. Use correct and safe handling techniques appropriate to the species and age of the animal
- 7.18. Ensure any cage labels are correctly transferred and securely attached to clean accommodation

- 7.19. Ensure the animals are secure in their clean accommodation and observe that they are displaying normal behaviour
- 7.20. Ensure the recommended stocking density for the species and the size of cage are complied with (South African National Standards (SANS) 10386)
- 7.21. Discard all waste in an appropriate manner
- 7.22. Remove soiled caging material, hoppers, water containers, environmental enrichment objects in an appropriate manner to the correct location for sanitisation
- 7.23. Sanitise / disinfect / sterilise working area, including animal room floors as appropriate once cage changing has been completed
- 7.24. Routinely and appropriately wash / disinfect / sterilise all animal room accommodation, food hoppers, water bottles and environmental enrichment equipment. Including the use of specialised equipment and chemicals
- 7.25. Routinely and appropriately wash / disinfect / sterilise all animal cage-racking
Record the time and sign for completion of all tasks

8. Ancillary animal facility areas

- 8.1. Ancillary areas include all areas in the animal facility which are not animal rooms
- 8.2. Ensure that clean and dirty items are kept separate and stored correctly
- 8.3. Ensure that all these areas are maintained in a tidy, clean and sanitised condition at all times; especially at the end of each working day.
- 8.4. Ensure that cleaning equipment is maintained in a clean and sanitised condition at the end of each working day.
- 8.5. Ancillary areas include, *Inter alia*, entrance and exit lobbies (for staff and goods), waste areas, showers, toilets, store rooms (including food, bedding, consumables, cages, etc.), cage and bottle wash areas, corridors, tea room and office

9. Maintenance of equipment and stores

- 9.1. Maintain all equipment clean and in working condition at all times
- 9.2. Ensure correct servicing, maintenance and calibration of all equipment and animal room services
- 9.3. Ensure that all servicing, maintenance and calibrations are recorded and records maintained up to date and in order
- 9.4. Ensure that animal diet and consumables are ordered timeously
- 9.5. Maintain a record of all stores
- 9.6. Maintain all storage areas in a tidy and clean manner

10. Monitor and maintain the health and welfare of laboratory animals

- 10.1. Meet your legal and moral responsibility to the animals at all times
- 10.2. Maintain the health and welfare of animals in your care at all times

- 10.3. Be committed to the practice of the 3Rs principles (Replacement, Reduction, Refinement) (Russell, W.M.S. and Burch, R.L., (1959). *The Principles of Humane Experimental Technique*, Methuen, London)
 - 10.4. Check at appropriate frequency to identify any deaths (mortality check)
 - 10.5. Dispose of the carcass according to recommended guidelines
 - 10.6. Record any deaths, date and sign; and report the death to the appropriate person
 - 10.7. Care for the animals in a way which is likely to lead to meaningful and accurate scientific research results or efficient breeding programmes
 - 10.8. Recognise potential hazards to the animals, take appropriate action and suggest ways to make improvements in animal care and welfare
 - 10.9. By observing the various species (listed in Table 1) of laboratory animal(s), undisturbed, housed singly or in a group, be able to recognise the difference between normal behaviour and abnormal behaviour.
 - 10.10. Be able to recognise pain, suffering and distress in the different species (listed in Table 1).
 - 10.11. Be able to recognise and manage common laboratory animal diseases
 - 10.12. Be aware of the risk of zoonotic diseases, in all animal species and especially in primates
 - 10.13. Manage health monitoring programmes, including sentinel management
 - 10.14. Manage cage cleanliness, realising the impact on animal health and well-being
 - 10.15. Check at appropriate frequency to identify signs of pain, suffering or distress, and take appropriate action when abnormalities are detected.
 - 10.16. Record observations, date and sign; and know to whom to report such problems
- 11. Check the physical condition of a laboratory animal by performing a full systematic clinical observation**
- 11.1. To be able to recognise what is abnormal in an animal you must be familiar with what is normal for each species (listed in Table 1)
 - 11.2. Check the animal accommodation for signs of blood or other discharge
 - 11.3. Regularly check the physical condition of the animal
 - 11.4. Regularly monitor and record the body weight of each animal as per local standard operating procedures and ethics committee approved protocols
 - 11.5. Be able to create a growth curve
 - 11.6. Record, date, time and sign appropriate records
 - 11.7. Know who to report any serious deviations from normal to, and do so timeously
 - 11.8. Restrain the animal safely and securely, according to recommended guidelines, minimising stress to the animal
 - 11.9. Examine the animal thoroughly, using a systematic process (from tip of nose to tip of tail)
 - 11.10. Record the findings, date, time and sign
 - 11.11. Know who to report any deviations from normal to, and do so timeously
 - 11.12. It may be necessary to check other clinical parameters such as body temperature.

- 11.13. Record, date, time and sign appropriate records
- 11.14. Know who to report any deviations from normal to, and do so timeously
- 11.15. Be able to recognise common laboratory animal diseases and report to veterinarian

12. Animal room and barrier management

- 12.1. Constantly manage the animal room for cleanliness, hygiene and disinfection, maintaining optimal animal room sanitisation at all times
- 12.2. Be able to sanitise and disinfect an animal room; using specialised equipment, and appropriate chemicals
- 12.3. Assist with animal room sterilisation
- 12.4. Operate an autoclave and confirm successful sterilisation
- 12.5. Maintain the integrity of the animal room barrier at all times
- 12.6. Understand and correctly apply the principles of biocontainment and bio exclusion
- 12.7. Understand biosafety level classifications and different levels of biosecurity required
- 12.8. Use the correct procedures at all times, prior to entry / exit from any animal room
- 12.9. Use the correct procedures for entry / exit of materials and personnel across the barrier
- 12.10. Recognise an emergency that may affect the integrity of the barrier, and report it immediately. Record problem. Take appropriate emergency action.
- 12.11. Monitor and record animal room environmental parameters, including room temperature, relative humidity and differential air pressures on a daily basis
- 12.12. Monitor and record the cage environment where the animals' direct accommodation environment may differ from the room environments, such as in IVCs
- 12.13. Record and sign for these environmental parameters
- 12.14. Where animal room or direct animal accommodation environment parameters fall outside of acceptable recommended limits, know how to record this, and to whom to report any problems and follow up (South African National Standards (SANS) 10386).
- 12.15. Routinely monitor and record light cycles, light intensity, ventilation rates
- 12.16. Method of entering and exiting a BSL2 and BSL3 facility. Be able to work appropriately under BSL2 and BSL3 laboratory conditions

13. Animal identification

- 13.1. Be aware of the various identification methods of laboratory animals and their use in various species
- 13.2. Be able to apply non-invasive animal identification such as non-toxic dyes, photographs, use of coat colouring where appropriate

- 13.3. Assist with the application of invasive animal identification such as ear notching and micro-chips, where appropriate
- 13.4. Be able to correctly identify an animal from the various methods that may be used for identification in various species
- 13.5. Be able to correctly identify animal accommodation

14. Laboratory animal breeding and colony management

- 14.1. Manage appropriate barrier conditions for animal breeding colonies
- 14.2. Demonstrate practical application and understanding of animal genetics
- 14.3. Demonstrate a practical application and understanding of Mendelian hereditary
- 14.4. Demonstrate a practical application and understanding of reproductive physiology
- 14.5. Select breeding stock for specific outcomes, including different animal models
- 14.6. Demonstrate a practical understanding of genetic drift and genetic quality control
- 14.7. Assist with the management of breeding programmes and colony size management.
- 14.8. Manage colony size with regards to supply and demand
- 14.9. Calculate the number of breeding pairs to use, in order to supply sufficient numbers of animals, without significant overbreeding (i.e. wastage).
- 14.10. Prepare accommodation conditions suitable for breeding
- 14.11. Select breeding animals as per instructions
- 14.12. Monitor and maintain animal care and husbandry without unduly disturbing the animals; provide nesting material when female is close to parturition
- 14.13. Make up breeding groups as per instructions
- 14.14. Assist with palpating for pregnancy where appropriate
- 14.15. Monitor and record animal health during pregnancy
- 14.16. Observe breeding animals regularly without undue disturbance
- 14.17. Record observations, report any problems to the correct person
- 14.18. Record the date of birth and the number of animals born as well as deaths or still births
- 14.19. Care for the mother and the young – be aware of special nutritional requirements
- 14.20. Observe animals during parturition, record and report any problems to the correct person
- 14.21. Wean and correctly sex animals at appropriate age
- 14.22. Care for the new-born animals including social grouping
- 14.23. Generate specified health status colonies (SPF and gnotobiotics)
- 14.24. Understand how disease-free (health status) certificates work and the principles of disease free (health status) certificates
- 14.25. Manage breeding colony health monitoring programmes, including sentinel management
- 14.26. Quarantine and introduction of new animals

- 14.27. Perform specific reproductive procedures for example C-section and embryo transfer (if experience not possible, must demonstrate an understanding of these procedures)
- 14.28. Ensure all records and cage labelling are up to date and correct on a daily basis
- 14.29. Record all breeding data

15. Knowledge of legal, ethical, welfare and professional requirements

- 15.1. Demonstrate an understanding of legislation as it pertains to the field of LAT: The Veterinary and Para-Veterinary Act (Act 19 of 1982), Animals Protection Act (Act 71 of 1962), Genetically Modified Organisms (GMO) Act (Act 15 of 1997), Animal Diseases Act (Act 35 of 1984), Animal Improvement Act (Act 62 of 1998), National Environmental Management: Biodiversity Act (Act 10 of 2004), Medicines and Related Substances Act (Act 101 of 1965)
- 15.2. Demonstrate practical application of the National Standards (SANS 10386).
- 15.3. Demonstrate practical application of the 3Rs
- 15.4. Demonstrate practical application of the 5 freedoms
- 15.5. Demonstrate an understanding of the view of animal research in society (positive and negative)
- 15.6. Demonstrate an understanding of the difference between animal rights and animal welfare
- 15.7. Demonstrate an understanding of sentience
- 15.8. Recognise pain and distress in laboratory animals
- 15.9. Demonstrate an understanding of the principles of harm and be able to undertake a benefit assessment
- 15.10. Demonstrate practical application of the principles of humane euthanasia
- 15.11. Be able to advise personnel on the selection of appropriate animal care and use procedures and techniques, in line with ethical standards and legal requirements.
- 15.12. Demonstrate an understanding of human welfare such as compassion fatigue, the cost of caring, the concept of a culture of care

16. Prepare environment for laboratory animal procedures including theatre management

- 16.1. Ensure structural requirements are adequate (airflow, temperature, etc.)
- 16.2. Ensure environment is prepared to correct state of cleanliness, disinfection, sterilisation (depending on procedure)
- 16.3. Ensure all surgical instruments are correctly prepared
- 16.4. Prepare equipment and materials for the procedure
- 16.5. Ensure aseptic techniques are followed at all times
- 16.6. Ensure the principles of avoiding infection are followed (HALSTED principles)
- 16.7. Ensure correct personal hygiene and personal protective equipment
- 16.8. Assist others to prepare for procedures (such as gowning, PPE)
- 16.9. Manage waste, ensuring that all waste / spillage is disposed of correctly
- 16.10. Sanitise equipment and material after use

- 16.11.** Return equipment and material to the correct location
- 16.12.** Restore the environment to its original state of cleanliness following the procedure
- 16.13.** Restock consumables
- 16.14.** Ensure all data is recorded immediately
- 16.15.** Report any incidents immediately and to the correct person

17. Prepare laboratory animals for procedures

- 17.1. Ensure the correct animal is selected for the procedure
- 17.2. Restrain the animal safely and with care
- 17.3. Prepare the animal for behavioural studies, non-invasive procedures, aseptic procedures and surgery
- 17.4. Withhold food and water as required and record time

18. Perform clinical procedures on laboratory animals

- 18.1. Procedures should be competently performed on the animal species listed in Table 1.
- 18.2. Handling of scheduled medicines under the control of a registered veterinarian
- 18.3. Advise the most appropriate procedures and techniques based on the principles of the 3Rs, i.e. Refinement, Reduction and Replacement of animal use.
- 18.4. Care for animals appropriately during, and after, procedures have been performed.
- 18.5. Maintain patient homeostasis
- 18.6. Perform the procedures listed in Table 1, under an appropriate level of supervision.

19. Research / project management

- 19.1. Demonstrate a practical understanding and application of research methodology
- 19.2. Be able to set up an animal research project in accordance with the Animal Ethics Committee (AEC) protocol
- 19.3. Demonstrate the physical preparation of physical areas (e.g. theatre)
- 19.4. Perform the relevant administration / sampling processes
- 19.5. Order the correct animals as per protocols and allocate to experimental studies
- 19.6. Be able to draw up an experimental timeline (schedule from AEC protocol)
- 19.7. Demonstrate an understanding of the importance of sample size
- 19.8. Demonstrate an understanding of factors that can influence (confound) experimental results
- 19.9. Demonstrate the standardisation of experimental conditions
- 19.10. Demonstrate a practical understanding of the impact of nutrition and water quality on research
- 19.11. Monitor animal welfare and implement humane endpoints
- 19.12. Adhere to the AEC protocol
- 19.13. Report any incidents that deviate from the protocol or impact on animal welfare to the correct person
- 19.14. Liaise with AEC, relevant welfare organisations, researchers / students
- 19.15. Demonstrate an understanding of the ethical review process
- 19.16. Ensure correct waste disposal and decontamination

19.17. Maintain records according to correct quality management principles

20. Quality Management Systems

- 20.1.** Demonstrate practical application of quality management
- 20.2.** Demonstrate the ability to work within a quality assurance unit
- 20.3.** Demonstrate an understanding of the local animal ethics committee
- 20.4.** Generate unit specific Standard Operating Procedures (SOPs)
- 20.5.** Validate SOPs
- 20.6.** Train in SOP procedures
- 20.7.** Assess and confirm competence in SOPs
- 20.8.** Maintain up to date and accurate records of competence
- 20.9.** Demonstrate an understanding of the impact of the South African National Standards (SANS 10386) for the care and use of animals in scientific procedures
- 20.10.** Demonstrate an understanding of the Organisation for Economic Development (OEDC), which controls standards such as Good Laboratory Practice (GLP)
- 20.11.** Demonstrate an understanding of the impact of the South African National Accreditation System (SANAS), South African Veterinary Council (SAVC), National Council of SPCs (NSPCA), Department of Agriculture, Forestry and Fisheries (DAFF), South African Health Products Regulatory Authority (SAHPRA), National Health Research Ethics Council (NHREC), Department of Health (DEH)
- 20.12.** Control all documentation according to the requirements of "controlled documentation"
- 20.13.** Controlled documentation as defined by GLP relates to anything pertaining to a study (e.g. animal room temperatures, training records, study deviations and so on)
- 20.14.** Adhere to good data capturing practice
- 20.15.** Ensure validation of systems and equipment
- 20.16.** Adhere to municipal requirements e.g. sample disposal, waste and water management

21. Facility Management

- 21.1.** Measure environmental parameters: temperature, relative humidity, ambient light intensity, light cycles, noise pollution including ultra sound, vibration, directional airflow, air quality
- 21.2.** Demonstrate an understanding of environmental parameters on animal health, safety and research
- 21.3.** Demonstrate an understanding of HVAC
- 21.4.** Maintain different types of filters for barrier or isolator conditions
- 21.5.** Monitor and manage work flow and the separation of clean and dirty functions
- 21.6.** Manage the operation, maintenance and servicing of basic laboratory equipment including calibration. of: scales, water purification systems,

- caging systems, autoclaves, biosafety cabinets, laminar flow hoods, fume cupboards
- 21.7.** Maintain accurate and up to date records of all equipment
 - 21.8.** Demonstrate working in different bio-safety environments, including bio-containment areas, bio-exclusion areas and different bio-safety levels
 - 21.9.** Maintain barrier unit management including hygiene practices
 - 21.10.** Demonstrate health and safety practices and an understanding of common occupational hazards
 - 21.11.** Create a disaster management plan
 - 21.12.** Implement disaster management plan
 - 21.13.** Manage occupational health programmes e.g. staff vaccinations and compulsory health monitoring programmes
 - 21.14.** Manage stock of all consumables
 - 21.15.** Manage waste handling and disposal
 - 21.16.** Manage pest control policies
 - 21.17.** Manage the correct storage of food and bedding
 - 21.18.** Manage the correct sterilization of food and bedding
 - 21.19.** Manage access control and security including evacuation
 - 21.20.** Manage emergency plan and fire prevention
 - 21.21.** Manage the handling and storage of experimental and therapeutic drugs
 - 21.22.** Manage scheduled drug control under the supervision of a veterinarian

22. People and professional skills

- 22.1.** Perform Supervision of staff
- 22.2.** Demonstrate professional communication / interaction
- 22.3.** Perform basic financial management e.g. budgets, business practice
- 22.4.** Demonstrate awareness of cultural differences and disability
- 22.5.** Demonstrate an application of employment conditions according to the Basic Conditions of Employment Act (Act 75 of 1997)
- 22.6.** Ensure employee readiness
- 22.7.** Practice the principles of good time management
- 22.8.** Manage agreements (e.g. confidentiality agreements)
- 22.9.** Maintain professional interaction with veterinary and other para-veterinary professions
- 22.10.** Demonstrate application of conflict management

Table 1: List of procedures per animal species that are regarded as Day 1 Skills

Note: The procedures per species highlighted in this table indicates the ideal competence situation, however it is understood that a given person would not necessarily be competent in each procedure in all indicated species. The overall assessment of competence is based on the relative scoring importance awarded to each procedure-species combination, as implemented in the Work Integrated Learning logbook system employed during the training of Laboratory Animal Technologists.

Procedure	COMPULSORY SPECIES					SELECT ONE OTHER ANIMAL SPECIES							
	Mouse	Rat	Rabbit	Fish	Guinea pig	Pig	Primate	Dog	Cat	Sheep	Goat	Chicken	Frog
Blood collection (terminal cardiac puncture)	X	X	X		X								
Blood collection (tail vein)	X	X											
Blood collection (artery)			X										
Blood collection (venous)	X	X	X		X	X	X	X	X	X	X	X	
Blood pressure monitoring (Non-invasive)		X				X	X	X	X				
Calliper measurement (cutaneous lesions)	X	X	X	X	X	X	X	X	X	X	X	X	X

Procedure	COMPULSORY SPECIES										SELECT ONE OTHER ANIMAL SPECIES						
	Mouse	Rat	Rabbit	Fish	Guinea pig	Pig	Primate	Dog	Cat	Sheep	Goat	Chicken	Frog				
Catheterisation (extremity)		X	X			X	X	X	X	X	X						
Catheterisation (tail)	X	X															
Clinical examination (general)	X	X	X	X	X	X	X	X	X	X	X	X	X				
Clipping (tail-cuts)	X	X		(fin clipping)													
Clipping (teeth)	X	X	X			X											
Clipping (nails)	X	X	X		X		X	X			X						
Clipping (beaks)											X						
Embryonated egg inoculation, candling and sampling											X						
Euthanasia (cervical dislocation)	X	X									X						
Euthanasia (decapitation)	X	X		X							X	X	X				
Euthanasia (destruction of the brain by pithing or captive bolt)										X			X				

Procedure	COMPULSORY SPECIES							SELECT ONE OTHER ANIMAL SPECIES						
	Mouse	Rat	Rabbit	Fish	Guinea pig	Pig	Primate	Dog	Cat	Sheep	Goat	Chicken	Frog	
Euthanasia (inhaled, volatile anaesthetic with or without CO2)	X											X		
Euthanasia (injectable)	X	X	X	X	X	X	X	X	X	X		X	X	
Euthanasia (immersion) (snap freeze)				X										
Euthanasia - confirmation of death	X	X	X	X	X	X	X	X	X	X	X	X	X	
Fluid infusion	X	X	X		X	X	X	X	X	X	X			
General anaesthesia (inhalant (describe))	X	X	X		X	X	X	X	X			X	X	
General anaesthesia (intravenous)	X	X	X		X	X	X	X	X			X	X	
General anaesthesia (extra vascular)	X	X	X				X							
General anaesthesia (immersion)				X										
General anaesthesia (monitoring before, during & after procedure)	X	X	X	X	X	X	X	X	X			X	X	

Procedure	COMPULSORY SPECIES							SELECT ONE OTHER ANIMAL SPECIES						
	Mouse	Rat	Rabbit	Fish	Guinea pig	Pig	Primate	Dog	Cat	Sheep	Goat	Chicken	Frog	
Identification (ear tags or patagial tags)	X	X	X		X	X				X		X		
Identification (ear notching)	X	X			X	X								
Identification (micro-chipping)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Injection (intra-muscular)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Injection (intra-peritoneal)	X	X	X	X	X							X	X	
Injection (intra-venous)	X	X	X		X	X	X	X	X	X	X	X		
Injection (sub-cutaneous)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Intubation (endo-tracheal)			X			X	X	X	X					
Mechanical respiration (positive pressure ventilator)			X			X	X	X	X					
Physical handling	X	X	X	X	X	X	X	X	X	X	X	X	X	
Physical restraint	X	X	X	X	X	X	X	X	X	X	X	X	X	
Preparation of samples for culture	X	X	X	X	X	X	X	X	X	X	X	X	X	

Procedure	COMPULSORY SPECIES							SELECT ONE OTHER ANIMAL SPECIES						
	Mouse	Rat	Rabbit	Fish	Guinea pig	Pig	Primate	Dog	Cat	Sheep	Goat	Chicken	Frog	
<i>or pathology (preparation does not mean running the test) (blood, body fluids, saliva, ascites, free flow urine, faeces)</i>														
Preparation of cytological smears	X	X	X	X	X	X	X	X	X	X	X	X	X	
Substance administration (cutaneous/topical)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Substance administration (immersion)				X										
Substance administration (oral gavage)	X	X	X							X		X		
Surgical procedures (lancing of abscesses)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Surgical procedures (suturing of superficial wounds)	X	X	X	X	X	X	X	X	X	X	X	X	X	

Procedure	COMPULSORY SPECIES							SELECT ONE OTHER ANIMAL SPECIES						
	Mouse	Rat	Rabbit	Fish	Guinea pig	Pig	Primate	Dog	Cat	Sheep	Goat	Chicken	Frog	
Surgical assistance	X	X	X	X	X	X	X	X	X	X	X	X	X	
Surgical preparation (patient)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Surgical preparation (operative area)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Surgical preparation (surgeon)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Swab collection for diagnostic purposes	X	X	X	X	X	X	X	X	X	X	X	X	X	
Tissue/organ collection (post-mortem)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Perform basic post-mortem examination	X	X	X	X	X	X	X	X	X	X	X	X	X	
Using tranquiliser dart gun and blow pipe within the vivarium							X							
Weighing (including correct management of scale)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Wellbeing monitoring (daily)	X	X	X	X	X	X	X	X	X	X	X	X	X	

Procedure	COMPULSORY SPECIES						SELECT ONE OTHER ANIMAL SPECIES						
	Mouse	Rat	Rabbit	Fish	Guinea pig	Pig	Primate	Dog	Cat	Sheep	Goat	Chicken	Frog
health and welfare)													

[Council approved: 14-15 March 2018]
[VC/EDUC/DAY 1 SKILLS_version 2]

SAVC DAY 1 SKILLS FOR THE VETERINARY NURSE

A. Legal, professional and ethical practice

- Uphold proper conduct with regards to professional, legal and ethical responsibilities in relation to the profession and the Code of Conduct.
- Demonstrate knowledge of and comply with relevant legislation, including occupational health and safety legislation.
- Uphold professional confidentiality.
- Apply principles of bio-security to minimise the risk of contamination, cross infection and accumulation of pathogens at the practice and in the field. This includes the correct handling and disposal of biological/medical waste and contaminated materials in an appropriate manner and ensuring that appropriate protective clothing is worn when appropriate.
- Educate clients about disease prevention and care of healthy animals and promote primary health care activities.
- Promote Primary Animal Health Care (PAHC).
- Demonstrate knowledge of zoonotic and notifiable diseases and harmful behaviour by animals.
- Awareness of WHO requirements regarding the prevention of zoonotic diseases, i.e. managing the risk of zoonotic disease and other pathogens in practice.
- Ensure that animals are correctly restrained, housed and handled to prevent injury to self, colleagues or animal owners.

B. General nursing care

- Assist the veterinarian with the implementation of basic preventive and prophylactic programmes to promote health, welfare, productivity and performance for the patient.
- Manage the housing, hygiene, feeding and methodologies of disease prevention of animals, in a registered facility.
- Advise about the housing, hygiene, feeding and disease prevention of animals in the field.
- Obtain a basic history of the individual animal/group of animals including relevant aspects related to the husbandry of the animal(s).
- Maintain general animal wellbeing. This includes oral and dental care, their comfort and pain management, nutrition, as well as acceptable grooming procedures and techniques.
- Have knowledge and apply the principles of animal behaviour, ethology and animal handling.
- Have knowledge and apply the principles of reproduction and obstetrics, including supervision of animals giving birth and caring for newborns.
- Administer medicines to patients in the prescribed manner.
- Apply pharmacological principles and calculate dosages of medicines according to instructions.
- Store, administer and dispense appropriate pharmacological agents including medicines and vaccines according to relevant legislation.

B. Sampling and diagnostic support

- Ensure safe and correct preparation, collection, preservation, identification, handling, packaging and dispatch of samples.
- Ensure that any diagnostic equipment and instrumentation is used safely and maintained in accordance with current regulations, with appropriate quality control and calibration.
- Record and report findings.

C. Clinical procedures

- Perform a basic clinical examination, observe and monitor patients, distinguish between normal and abnormal clinical parameters and assess pain.
- Recognise and attend to animals in an emergency and apply the principles of "triage".
- Assist the veterinarian in all therapeutic or other interventions.
- Placement, maintenance and removal of catheters.
- Administer intra-dermal, intra-peritoneal, subcutaneous, intra-muscular and intra-venous injections correctly.
- Implement chemical methods of restraint in accordance with the rules.
- Safely pre-medicate, induce, maintain and monitor analgesia, sedation and general anaesthesia.
- Facilitate safe recovery from anaesthesia.
- Set up, administer and monitor infusions.
- Collect blood and administer a blood transfusion.
- Assist the veterinarian or authorised person [a person authorised by Council in terms of section 23(1)(c)] with surgical procedures using appropriate techniques before, during and after surgery, including correct implementation of aseptic technique.
- Ensure appropriate cleaning, maintenance, sterilisation and storing of surgical equipment.
- Carry out minor surgical procedures in accordance with the rules.
- Perform dental prophylactic treatment and simple extractions.
- Wound management.
- Perform acute phase physical rehabilitation of in-hospital patients.
- Perform radiography and assist with other diagnostic imaging modalities.
- Implement appropriate instrument and equipment care and safety precautions associated with radiation.
- Perform euthanasia safely and humanely where required, ensuring that appropriate consent is recorded.

E. Veterinary business management, information technology and communication principles

- Maintain accurate and detailed medical, financial and inventory records, electronically or otherwise.
- Ensure recording of scheduled medicines in accordance with legislation.
- Practice relevant human resource management.
- Perform front desk, client liaison and administrative duties.
- Understand and use veterinary terminology correctly.
- Communicate effectively and professionally, both verbally and non-verbally, with clients, colleagues, and responsible authorities.

<p>LIST OF PRACTICAL PROCEDURES VETERINARY NURSES - 2019</p>

*[NOTE: This is not a complete list of common procedures. It is a list of procedures designed to test the candidate's competence. Candidates must be able to complete / explain / demonstrate **any one or more** of the following procedures / actions.]*

THEATRE PRACTICE

- Apply a surgical head cover for staff
- Apply shoe covers
- Apply a face mask
- Aseptically gown
- Aseptically glove
- Hand hygiene
- Position patients in dorsal recumbency
- Position patients in sternal recumbency
- Position patients in lateral recumbency
- Demonstrate appropriate draping techniques.
- Maintain a sterile surgical field
- Open a wrapped sterile pack
- Open sterile Aseptor packets
- Open sterile peel back packets
- Organise an instrument trolley
- Maintain an orderly trolley
- Perform an instrument count
- Perform a swab count

- Pass instruments in the correct manner
- Swab an operation field
- Cut sutures during suturing process
- Apply surgical haemostasis
- Apply topical haemostatic agents
- Apply and monitor a tourniquet to control diffuse bleeding during surgery of extremities
- Dispose of surgical waste
- Prepare items for, and perform appropriate type of sterilisation
- Demonstrate the use, maintenance and care of equipment used to maintain body temperature
- Demonstrate the operation, maintenance and care for a suction apparatus
- Demonstrate the operation, maintenance and care for equipment for haemostasis
- Identify surgical instruments and know their functions
- Care for and handle surgical instruments in a correct manner
- Store surgical instruments
- Inspect and test surgical instruments
- Thread suture material through a needle
- Identify needles according to shape, size, and type of point
- Care for surgical needles
- Identify types of wound closure materials and its suitability for different applications
- Select appropriate size and type of wound closure material
- Handle wound closure material correctly
- Demonstrate the correct knotting technique to place simple interrupted and simple continuous sutures
- Remove skin sutures and staples
- Identify the different suture patterns
- Demonstrate inspection of all equipment before use

SURGICAL NURSING

- Wound lavage
- Maintenance of drains and dressings
- Apply bandages
- Pre-operative preparation of the surgical patient
- Prepare a patient for periodontal therapy
- Perform a basic dental prophylaxis (scale and polish)
- Perform a basic oral examination on a horse
- Perform a dental radiographic study

MEDICAL NURSING

Perform the following:

- Blood smear
- Perform 2% Fluorescein stain
- Perform Schirmer tear test
- Take conjunctival swabs
- Prepare a cytological sample of the eye
- Ear smear
- Hair pluck
- Skin scrape
- Woods lamp examination
- Faecal flotation
- Faecal smear
- Wet prep
- Collection of urine
- Urinalysis
- Demonstrate the use of a glucometer
- Cardiac auscultation - normal heart sounds
- Set up and monitor an ECG
- ECG trouble shoot
- Place an over the needle (Jelco or Bardicath) catheter
- Pass a stomach tube
- Place a naso-oesophageal or naso-gastric tube
- Set up and monitor infusions
- Demonstrate the collection of blood for transfusion

- Demonstrate principles of physical rehabilitation (coupage, passive range of motion and massage)
- Set up a nebuliser
- Examine rumen motility
- Rumen fluid examination
- CMT (California mastitis test)
- Demonstrate restraint of animals

RADIOGRAPHY

- Perform a routine radiographic procedure.
- Evaluate radiographic images by applying an effective critique method and make appropriate adjustments to improve image quality.

ANAESTHESIA

- Set up the appropriate anaesthetic machine
- Intubation and extubation
- Cardiopulmonary resuscitation

REPRODUCTIVE NURSING

- Goats and sheep: Remove a progestagen sponge
- Thaw frozen semen straws and load an AI pistolette
- Manage a nitrogen flask
- Sheath wash bull
- Prepare vaginal smears of a bitch
- Identify and demonstrate use of simple obstetric instruments
- Correct simple abnormal foetal posture in a ewe with dystocia
- Correct simple abnormal foetal posture in a cow with dystocia

GENERAL NURSING

- Evaluate body temperature
- Evaluate pulse
- Evaluate respiration
- Examine mucous membranes
- Venous blood collection, appropriate to the species
- Subcutaneous, intra-muscular and intravenous injections
- Apply topical creams and ointments
- Apply eye and ear medication
- Administer oxygen appropriate to the situation and species

**[Council approved: 31 July 2019]
[VC/EDUC/DAY 1 SKILLS/version 3]**



SAVC DAY 1 SKILLS FOR THE VETERINARY WELFARE ASSISTANT

COMMUNICATION: The Veterinary Welfare Assistant (VWA) should be able to:

- 1) Communicate effectively with the general public, clients, colleagues and the veterinarians under whose supervision he/she is working;
- 2) Work as a member of a multi-disciplinary team and converse and collaborate effectively with colleagues and other professionals for the well-being of the patient using correct basic medical terminology.
- 3) Prepare and maintain clear and accurate patient records and reports;
- 4) Have good listening skills, taking into account any communication differences that people may have and adapt language form and style to the audience and context of the conversation;
- 5) Convey appropriate sympathy and empathy in verbal and non-verbal communication;
- 6) Provide information to the client in a manner and at a pace that enables the client to make informed decisions; and
- 7) Obtain verbal and where necessary written consent from the client where appropriate.

PROFESSIONAL ETHICS AND PRACTICE: The VWA shall:

- 1) Comply with SAVC rules and policies;
- 2) Ensure that his/her conduct is aligned with professional, moral and ethically acceptable standards and that he/she acts with integrity and tolerance towards patients, clients and colleagues;
- 3) Comply with the legal requirements of the profession in terms of the Acts and Laws governing it, including:
 - a) The Veterinary and Para-Veterinary Professions Act No. 19 of 1982
 - b) The Animals Protection Act No. 71 of 1962
 - c) The Medicine and Related Substances Control Act No. 101 of 1965
 - d) and any other relevant legislation.
- 4) Recognise the legal boundaries of the profession and his/her personal limitations and know when to seek advice or refer a case to the supervising veterinarian.
- 5) Cultivate the habit of updating and maintaining his/her knowledge and skills on a continuous basis through Continuing Professional Development in order to update and improve his/her competence;
- 6) Be able to manage his/her time effectively;
- 7) Take into account personal and emotional factors affecting his/her profession;
- 8) Be familiar with the Health and Safety requirements of his/her profession and be aware of risk factors in the maintenance of a hygienic working environment;
- 9) Be able to apply appropriate infection-control measures within the workplace;



- 10) Know how to clean and maintain housing and kenneling facilities that maximise the welfare of hospitalised and kennelled animals;
- 11) Be able to handle and dispose of medicines, hazardous and biological waste correctly, safely and in accordance with legal requirements;
- 12) Have an understanding of occupational safety and preventative safety practices;
- 13) Use and maintain protective clothing and equipment correctly;
- 14) Be able to perform stock control, management and record keeping, including knowledge of the correct storage of medicines, the legal requirements for storage of scheduled medicines; and
- 15) Be familiar with basic equipment used in the veterinary hospital, including but not limited to the thermometer, stethoscope and microscope.

ANIMAL CARE: The VWA shall be able to:

- 1) Assess the behaviour of a patient and respond appropriately when handling an animal;
- 2) Follow appropriate hygiene procedures before and after handling a patient;
- 3) Handle and restrain a patient using only appropriate approved and humane techniques for the welfare and safety of both the handler/s and the animal;
- 4) Know how to use aids and safety devices correctly (halter/ lead/ muzzle/ catcher/ gloves);
- 5) Advise on correct and humane transport and basic handling of animals;
- 6) Recognise common breeds of companion animals namely canines, felines and equines;
- 7) Correctly describe an animal by the following criteria: breed, sex, colour, approximate age, identifying features or characteristics (physical abnormalities, tattoo/ microchip, etc.);
- 8) Explain the principles and advantages of pet sterilisation to the client clearly.
- 9) Advise on an effective vaccination, deworming and ecto-parasite control program for the prevention of diseases in companion animals namely canines, felines and equines;
- 10) Implement a treatment protocol for ecto- and endoparasite infestations;

CLINICAL COMPETENCE: The VWA shall be able to correctly:

- 1) Take a complete history from the client, gathering relevant information regarding the patient by the use of appropriate questions;
- 2) Evaluate the behaviour and condition of the patient;
- 3) Differentiate between a healthy and an ill patient;



- 4) Have a basic working knowledge of the anatomy and physiology of all the organ systems of the companion animals namely canine, feline and equine;
- 5) Perform a physical examination of the patient in logical sequence and within time constraints, including TPR, assessment for dehydration or malnutrition, presence of external parasites and obvious injuries or clinical symptoms;
- 6) Identify and resolve husbandry issues related to the patient with respect to nutrition, housing, behavioural needs, disease prevention and parasite control;
- 7) Summarise the discussion and evaluation verbally and record the relevant case details and history for the purpose of reporting to the supervising veterinarian and record- keeping;
- 8) Communicate such findings clearly and concisely to the supervising veterinarian;
- 9) Administer medication by oral or topical routes;
- 10) Administer a subcutaneous or intramuscular injection;
- 11) Store, reconstitute and administer vaccines;
- 12) Assess clinical, ethical and welfare factors to determine the appropriateness of euthanasia;
- 13) Euthanase a canine or feline effectively and humanely using the cephalic vein;
- 14) Euthanase humanely using the intraperitoneal method where the patient is either too young or too debilitated for intravenous euthanasia;
- 15) Understand the principles of pharmacology and medicine classification and be able to calculate a correct medicine dosage for the patient;
- 16) Administer and/or dispense medicines in accordance with legal requirements [section 22AA(6)(r) & 22A(16)(c)], amongst others;
- 17) Perform a blood smear, fix and stain it;
- 18) Perform a skin scraping;
- 19) Know safety related to the use of diagnostic imaging equipment;
- 20) Prepare and sterilise surgical equipment and instruments;
- 21) Prepare the surgical site and position the patient for surgery;
- 22) Perform cleaning and management of simple wounds and advise the client on wound management;
- 23) Perform simple nail clipping and grooming; and
- 24) Have an understanding of fluid therapy and be able to administer subcutaneous fluids where necessary.

YEAR ONE COMPETENCIES: The VWA shall be able to:

- 1) Recognise an emergency condition when presented and stabilise the patient and refer it to the veterinarian as soon as possible;
- 2) Perform a complete and accurate clinical examination in order to locate obvious abnormalities in any of the organ systems, including assessment of CRT and mucus membrane colour, chest auscultation, palpation of superficial lymph nodes and abdominal palpation;



- 3) Recognise and give practical advice on zoonotic and/or controlled or notifiable diseases;
- 4) Correctly insert an intravenous catheter and set up a drip using a crystalloid solution at an appropriate drip rate in an emergency situation and in the absence of a veterinarian or veterinary nurse;
- 5) Know the presenting symptoms and basic treatment of the following conditions according to defined standardised treatment protocols: gastro-enteritis, upper respiratory tract infections, distemper, parvovirus, biliary fever and erlichia;
- 6) Apply a simple wound dressing or bandage and advise the client on maintenance of a bandage;
- 7) Examine a blood smear using a microscope and correctly identify the basic cell types and any abnormalities noticed, including the presence of biliary parasites; and
- 8) Examine a skin scraping microscopically in order to identify Sarcops and Demodex mites correctly and treat common external parasitic skin conditions.

**[Council approved: 31 July 2019]
[VC/EDUC/DAY 1 SKILLS_version 2]**