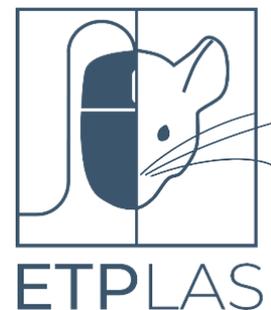# ETPLAS DOPS – example
Intraperitoneal injection in Zebrafish

Explanation of Levels, and General rubric, for all procedures

In each Directly Observed Practical Skills (DOPS) sheet, there are "assessment criteria" (in the left-hand columns) that are the aspects of the task used to assess the trainee's stage of learning or competence. The columns represent the supervision level of the trainee, according to the Report on Training & Supervision, published by the EU Working Group on Training in 2013.

The sections below comprise the "general" and "procedure-specific" assessment criteria for the procedure and should all be used during the assessment. They are coloured to emphasise the different assessment areas that make up the task (such as compliance, animal, procedure) and shaded to reflect level.

During the assessment, for each row, highlight the text that best aligns with the trainee's performance. <u>The trainee's overall supervision/ competence level is equivalent to the lowest level that's highlighted</u>. For example, if you've highlighted text in columns that indicate performance at Levels 3, 1 and 0, then the trainee is assessed as requiring Level 3 supervision overall. Indicate this in the summary section, and complete the feedback to assist the trainee's learning.

These DOPS assessments should be used together with the notes for assessors (below), which explain more about how to use the matrix.

EU WG document supervision level					
	BEGINNER		*INTERMEDIATE*		*COMPETENT*
	level 4	*Level 3*	*Level 2*	*Level 1*	*Level 0*
Supervisor's role	*Supervisor present: direct supervision & advice*	*Supervisor aware and available for rapid intervention*	*Supervisor aware & available to attend*	*Supervisor aware and available remotely*	*Competent: Trainee has sufficient skills to work independently*
About the Trainee	Begins training: Listens to supervisor; watches demonstration	Shows or does the task on a simulator (dummy, sedated, or dead animal).	Has carried out procedure successfully on one animal	Has carried out procedure successfully on a few animals	Has carried out procedure on several animals; can find solutions to issues encountered
Trainee's Knowledge	Demonstrates knowledge of legal constraints	States what equipment is required for this procedure.	Follows protocol for procedure; Relates likely adverse effects on animal and how to monitor for these.	Provides rationale for study materials/ equipment/ route used	Explains purpose of the study being carried out; its adverse effects and suggests refinements

Procedure-specific assessment criteria - <u>COMPLIANCE</u>		
	BEGINNER	**INTERMEDIATE**	**COMPETENT**
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Knowledge	* States suitable equipment and reagents needed for procedure: e.g. micro-syringe (less than 0.3mL); * Relates that new, sterile, needle per animal; Size ≤30gauge * Relates that anaesthesia is required for humane restraint of the fish * States reason for applying the injection.	* Calculates the injection volume for each fish based on fish weight (≤1µL per gram) * Identifies correct dose material. * States reasons for study materials/ equipment/ route used.	* Explains purpose of the study being carried out; its adverse effects and suggests refinements.
Health & Safety	* Follows instructions on safe working practices * Wears appropriate PPE	*Applies safe working practices; minimizes spillage of water on floor. *Leaves workspace clean and tidy after use.	
Legal authorities	* States how supervision requirements & legal authorities apply to trainee as they carry out this procedure with live animals in facility. * Identifies fish correctly * All tanks labelled Correctly	* Explains and checks the authorities and protocol that are required before starting procedure. * Completes appropriate records	* Explains requirement for maintenance of competence and CPD

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	Procedure-specific assessment criteria - PROCEDURE		
Preparation	* Follows tutor's instructions /prompts to complete task * Prepares correct syringe and needle for procedure; checks no air bubbles *Prepares anaesthesia and recovery tanks, sponge and dishes for fish; Buffers pH for MS222 (if used) * Prepares microscope and ensures function	* Ensures that fish have been fasted prior to procedure * Ensures clean housing for fish before and after procedure * Adjusts dose calculation according to substance and experimental protocol. (maximum 10 µL per adult zebrafish) * Trainee lacks experience to allow a smooth workflow	* Organised; smooth workflow throughout procedure * Explains management of flow-out if drug is excreted after injection.
Procedure technique	* Actively watches demonstration. * Operates dissecting microscope to allow clear focus * Identifies dose material and draws up dose accurately. * Catches and transfers fish gently between tanks and sponge * Needs guidance regarding needle placement/ angle	* Inserts needle carefully into the midline between the pelvic fins; needle points cranially and is inserted closer to the pelvic girdle than to the anus; just penetrates skin * Applies whole injection intraperitoneally * Transfers fish back to recovery tank and monitors swimming behaviour at frequent intervals post-procedure * Trainee may show anxiety and hesitation in the technique execution; lacks experience to allow a smooth workflow	* Applies procedure effectively in different ages/ strains of fish * Carries out procedure gently and without hesitation * Shows dexterity in handling fish and equipment.

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Procedure-specific assessment criteria - <u>ANIMALS</u>			
	BEGINNER	**INTERMEDIATE**	**COMPETENT**
Handling & Restraint	*Watches demonstration of non-aversive capture. *Selects the most appropriate net. * Follows instruction to catch zebrafish using non-aversive technique and gentle handling with a sterilised net.	* Catches the fish safely and gently, within 3 attempts * Uses net when transferring the fish between tanks; * Positions the fish with the abdomen up and the gills in the trough of the sponge * Minimises the time that an awake fish can be out the water, inducing the minimum distress * Works efficiently to minimise time under anaesthesia	*Catches and handles different fish safely (different age/sex/ strains) gently & with empathy. * Demonstrates dexterity in catching and handling fish
Welfare & Adverse effects	* Relates potential adverse effects of technique * States reasons for using system water and clean tanks throughout procedure * Explain reasons for fasting fish 24 hours before procedure * Checks fish for signs of damage following injection (e.g. loss of scales, bleeding, failure to recover) * Trainee still inexperienced in animal behaviour evaluation.	* Recognises signs that indicate stress/pain * Recognises signs that indicate sufficient depth of anaesthesia to proceed with the administration. *Explains protocol-specific likely adverse effects, how to monitor for these, endpoints and actions to be taken. * Explains that procedure must be carried out within normal working hours to allow sufficient monitoring	* Adjusts and/or stops the procedure execution if required. * Implements suitable refinements to mitigate adverse effects.

Professional behaviours	
Communication	* Communicates clearly and concisely regarding procedure * Demonstrates consideration of wider team. * Explains preparation and thinking ahead.
Empathy	* Handles animal gently; * Demonstrates understanding of value of living animal.
Knows own limits	* Demonstrates awareness of own limits and when to seek advice. * Open to receive advice/ guidance.
Engagement	* Engages with tutor and learning opportunity

Feedback for trainee:

Things done particularly well

Learning points

Action points

Formative Only ☐	Trainee Not yet competent ☐	Trainee Competent ☐

Assessor	**Trainee**
Name : _____	Name : _____
Signature : _____	Signature : _____
DATE:	

GLOBAL RATING: **COMPETENT** ☐   **CONTINUE SUPERVISION** ☐

END

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How to use these DOPS assessment sheets

Aim of the assessment:

The aim of the assessment is to determine the level of supervision that a trainee requires, as s/he learns a new technique, then eventually becomes competent to do it by themselves. These DOPS sheets set out the task's assessment criteria, to help the assessor to carry out the evaluation of the trainee.

The DOPS sheets set out in columns the levels of supervision, which are taken from the EU Training Working Group document and range from Level 4 (just starting training) to Level 0 (competent). However, it is challenging to separate performance at 5 different levels, so, for simplicity, the trainee is regarded as either "Beginner" (levels 4, 3), "Intermediate" (Levels 2, 1) or Competent (Level 0). The commentary ("rubric") for assessment is graded into 3 sections, accordingly.

How do these assessment sheets work?

This document states the competency levels in terms of the supervisor's actions. However, in accordance with modern pedagogical theory, the table sets out instead the assessment in terms of the level at which the _student_ is working, as this is actually what the trainer/ assessor is evaluating.

In order to carry out a procedure, the trainee is required to master a number of separate elements, such as knowledge of the legislation, the ability to handle the animal, some personal skills (such as communication and preparation) as well as the technical parts of the task itself.

These different aspects of competence are listed in the horizontal rows, with descriptions of the way that the trainee might behave, or the skills that they demonstrate. As you move from left to right, the level of competence increases, which is reflected in the complexity of trainee behaviours shown.

The DOPS sheets therefore consist of a _matrix of behaviours_ that the trainee would show in each of the assessment criteria, at each of the supervision levels, as they learn and develop proficiency.

Why are some points not specific?

Some of the criteria are deliberately left a little 'open' to allow for the discretion of the assessor. For example, the DOPS sheets state that, in order to be assessed as competent (Level 0) a trainee may be required to carry out a simple procedure on "many" mice. "Many" might typically be 20 or more animals.

However, if the trainee were carrying the same procedure using a large animal (e.g. minipig), rather than a mouse or zebrafish, or carrying out a more complex procedure (e.g. surgery) then the number of animals required to attain competence might be different, due to availability of the animals and frequency that the procedure is done. It is left to the trainer and assessor to decide on the most appropriate task replication to assure competence.

How do I use the sheet?

Observe the trainee carrying out the task.

For each horizontal row, highlight the text that best matches the behaviour that the student shows as s/he works. It may be that s/he will be working at different levels in the various criteria. This is quite normal! For example, a trainee may

communicate very well (Level 1) but not yet have grasped the technique for holding a mouse (Level 3).

The overall assessment of the student is at the LOWEST level of competence that you have highlighted on the matrix.

This assessment sheet can be kept with the student's training record and show their progress as they train and learn new skills.
Repeat the assessment as the student progresses. Once the student is working at the Level 0 (no supervision required) in all the criteria (horizontal rows) then they can be deemed competent to work unaided.