

Giving injections

Instructor check when completed

PREPARATION

- 1 Wash hands thoroughly
- 2 Calculate the amount of medicine required per pig and for the whole group of pigs to be treated:
 - Check the correct product to be used and the dosage rate in the department **Treatment protocol** or the farm **Vaccination protocol**
 - If necessary, calculate the dosage rate per pig, following the **Calculating the correct dose of medication** procedure
 - Calculate the total amount of medicine or vaccine to be used
- 3 Remove the required amount of medicine or vaccine from the medicines storage area
- 4 Check the site and route of injection in the department **Treatment protocol**
- 5 Select the correct syringe size for the amount of product to be injected
- 6 Select the correct needle length and gauge according to type and weight of pig from the **Needle length and gauge** chart. Always use a new disposable needle
Never use needles that are damaged or blunt

Needle length and gauge

Pig type	weight (kg)	Intramuscular				Subcutaneous			
		length		gauge		length		gauge	
		mm	ins	mm	g	mm	ins	mm	g
Piglet	1-7	16	5/8	0.8	21	---	---	---	---
Weaner	7-20	25	1	0.8-1.2	20-18	---	---	---	---
Grower	20-40	25	1	1.2	18	---	---	---	---
Finisher	40-120	38	1 1/2	1.4	16	---	---	---	---
Gilt	100-140	50	2	1.4	16	25	1	1.2	18
Sow/boar	140+	50	2	1.4	16	25	1	1.2	18



Instructor check when completed

PREPARATION (cont'd)

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| 7 | | Take sufficient needles to be able to change the needle after each 10 sows, 20 nursery/finisher pigs, 30 piglets |
| 8 | | Take a 38mm, 1 $\frac{1}{2}$ ", 1.4mm, 16g gauge "draw" needle for quick removal of product from the bottle |
| 9 | | Wipe the rubber seal at the top of part-used bottles with cotton wool soaked in surgical spirit. Ensure all bottles are clean |
| 10 | | Place bottles, syringes and needles in a clean medical tray for transport |

PROCEDURE

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| 1 | | Shake bottle of product well if indicated on the label |
| 2 | | Push a 38mm, 1 $\frac{1}{2}$ ", 1.4mm, 16g gauge needle into the top of the bottle |
| 3 | | Withdraw the syringe plunger by the amount of product to be injected and push onto the needle in the bottle |
| 4 | | Holding the bottle upside down, depress the plunger, forcing air into the bottle (not necessary with collapsible containers) then withdraw the correct amount of product |
| 5 | | Hold the syringe needle upwards, tap the syringe barrel to bring air bubble to the top and depress the plunger until any air is expelled |
| 6 | | If necessary, snare* the animal to be injected (note that injecting snared pigs is a two man operation) |
| 7 | | If necessary, clean the injection site with cotton wool soaked in surgical spirit.
<b style="color: red;"><i>Never inject through dirty or wet skin</i> |
| 8 | | For intramuscular injection insert the needle towards the top of the neck, above and behind the loose skin behind the ear. Ensure needle enters at 90° to the skin |



Instructor check when completed

PROCEDURE (cont'd)

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| 9 | For subcutaneous injection (gilts, sows, boars): <ul style="list-style-type: none"> ➤ Inject under the loose skin in the hollow behind the ear ➤ Create a fold of skin by pinching between thumb and forefinger ➤ Insert needle at a slight angle to run under the skin and beneath the fold |
| 10 | Push the plunger to inject the product and then withdraw the needle |
| 11 | <i>If the needle breaks off in the pig, mark it immediately and follow the Broken needle protocol</i> |
| 12 | Spray mark or tag* the pig for identification to ensure medicines withdrawal periods are correctly observed (if appropriate) |
| 13 | If more pigs are to be injected wipe the needle with cotton wool soaked in surgical spirit prior to the next pig (or between litters for suckling pigs) |
| 14 | When injections are completed: <ul style="list-style-type: none"> ➤ Place the plastic cap over the needle on syringe for safety ➤ Remove the needle from the medicines bottle |
| 15 | Record all injections given in the Medicines treatment record and on the gilt, sow or boar individual record card* if appropriate including the clearance date |
| 16 | Dispose of all used needles, syringes and empty medicines bottles according to the farm Waste disposal protocol |
| 17 | Sterilise any non-disposable syringes and needles and store in a container of surgical spirit |

SAFETY PROCEDURES

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| 1 | Always protect needles with a plastic cap when not being used |
| 2 | Restrain or snare* larger pigs that are likely to be difficult to inject |
| 3 | If accidental self-injection occurs: <ul style="list-style-type: none"> ➤ Inform the farm manager immediately ➤ Read the data sheet for the product injected ➤ Carry out any immediate actions recommended ➤ If necessary go to the doctor or medical centre, taking the data sheet ➤ If oil-based vaccine injected go immediately to the nearest hospital Accident and Emergency Department with the data sheet |



<p>Note to instructor</p>	<p>This task should normally be done together with Recording animal treatments, familiarisation with the relevant Treatment protocols and Calculating the correct dose of medication -first part: Injected Medicines</p>
<p>Equipment and facilities</p>	<ul style="list-style-type: none"> ➤ A group of pigs requiring treatment by injection, either vaccination or for a disease problem ➤ Bottles of vaccine or medicine ➤ Syringes and needles of the correct size ➤ Cotton wool, surgical spirit ➤ A plastic or stainless steel medical tray on which to transport materials ➤ Medicines treatment record
<p>Objective</p>	<p>To inject the correct amount of a medication or vaccine into the pig with due regard for the health and safety of the pig and the stockperson</p>
<p>Reasons</p>	<p>Explain to trainee:</p> <ul style="list-style-type: none"> ➤ Pigs with disease problems are often best treated by the use of injectable medication ➤ In addition, farm vaccination protocols require regular injections of vaccines
<p>Explain procedure</p>	<ul style="list-style-type: none"> ➤ Go through the preparation and procedures step by step, explaining what needs to be done and why ➤ Encourage questions
<p>Explain important points</p>	<p>Stress the key aspects of the procedure and explain Ask the trainee why he/she thinks they are important</p> <ul style="list-style-type: none"> ➤ Hygiene - cleanliness of hands, equipment and the injection site is essential to minimise the likelihood of introducing infection or leading to an abscess at the injection site. Ideally disposable syringes should be used. Needles should be replaced after 10 sows/boars, 15-20 nursery/finisher pigs and 3 litters of piglets ➤ Correct dose - too little product injected will reduce efficacy, too much will result in unnecessary cost, therefore accurate calculation of the correct dose is essential



Explain important points (cont'd)

Demonstrate

Questions

Trainee carry out

- Correct syringe and needle size - the danger of injecting into fat if needle length is too short (larger pigs) and welfare implications of needles being too large. Blunt or damaged needles must never be used
- Injection technique - good technique essential so that vaccine or medication is placed in the right site - in the muscle or under the skin
 - Intramuscular injection - in the top part of the neck, above and behind the area of loose skin behind the ear, at an angle of 90° to the skin
 - Subcutaneous - under the loose skin behind the ear, by pinching with thumb and forefinger to create a fold of skin, with the needle inserted at a slight angle to run under the fold
- Identification and recording - clear identification of treated pigs enables withdrawal periods to be observed. Careful recording in the **Medicines treatment record** is required to meet legal and food safety requirements. For gilts, sows and boars short treatment details may be entered on the individual record card*
- Operator safety - explain the risks of using needles through careless handling or due to pig movement during injection. Stress that needles should always be protected with their plastic caps when not in use and pigs that may be difficult to inject should be restrained or snared*. Data sheets for all injectable products must be available in case of accidental self injection
- Correct disposal of syringes, needles and medicines bottles according to the farm **Waste disposal protocol** for safety and environmental reasons

Show the trainee the skill step by step, explaining what is being done and following the procedures exactly. Make sure the trainee observes carefully and understands what is being done

Answer any questions regarding the procedures

Ask trainee to carry out the whole procedure, with help according to Competence level - explain what help you will give:



<p>Level of guidance</p>	<ol style="list-style-type: none"> 1. Give detailed step by step instruction through the whole procedure 2. Give guidance only when asked or when a problem occurs 3. Give no guidance: Trainee to describe what he/she is doing throughout the procedure
<p>Discuss</p>	<ul style="list-style-type: none"> ➤ Check off each stage on the procedures sheet ➤ How did the trainee feel he/she did? ➤ Which parts of the procedure were omitted or caused a problem?
<p>Problem solve</p>	<ul style="list-style-type: none"> ➤ Identify procedures not carried out or not done correctly ➤ Demonstrate them again if necessary ➤ Allow trainee to repeat them again if necessary
<p>Conclude</p>	<ul style="list-style-type: none"> ➤ Stress the importance of the task and using the correct procedures ➤ Refer the trainee to the relevant part of the Trainee handbook ➤ Thank him/her for their efforts ➤ Sign the trainee's Achievement record ➤ Arrange a date/time for training at the next Competence level if appropriate, or the Understanding review



Background

Many disease problems are best treated by the injection of medication. In addition pigs are given routine vaccinations at various stages in their life and other regular treatments such as iron injections for piglets are carried out. These treatments will only be effective if the injection technique is correct. All medicines and vaccines given to pigs also need to be recorded in detail in order to satisfy legal and food safety requirements.

Procedure

The procedure involves selection of the correct equipment, checking the appropriate dosage rate and administering an injection both intramuscularly or subcutaneously observing the correct safety procedures. The most important aspects are:

Hygiene: Poor hygiene may lead to an infection or abscess at the injection site. The procedures include thorough washing of the hands and cleaning the injection site if necessary. Ideally disposable syringes and needles should be used with regular replacement of needles. The suggested replacement policy is: sows and boars - 10, nursery and finisher pigs 15-20, piglets 30 (3 litters). If non-disposable equipment is used it must be sterilised after use and stored in surgical spirit.

Correct dose: The correct amount of injected product is vital to effectiveness especially with vaccines where the amounts injected are small and there is little room for error. Injection of too much product is wasteful and adds to the cost. In the case of medicines the correct dosage rate for the individual animal or group of pigs is calculated from the dosage rate given on the bottle label and estimated body weight eg 1ml per 10kg. The **Treatment protocols** give the product to use and the dosage rate for a range of conditions for each department, while the precise dose per pig can be assessed using the **Calculating the correct dose of medication** procedure.

Correct syringe and needle size: The syringe selected must hold sufficient product for the dosage being given. Needle size is more critical and must be appropriate to the size of pig and the method of injection being used. The table overleaf shows the correct types of needle to use. It is essential that blunt or damaged needles are never used.



Procedure (cont'd)

Needle length and gauge									
Pig type	weight (kg)	Intramuscular				Subcutaneous			
		length		gauge		length		gauge	
		mm	ins	mm	g	mm	ins	mm	g
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Sow/boar	140+	50	2	1.4	16	25	1	1.2	18

Incorrect needle length may result in the product being injected into the wrong tissue, for example an intramuscular injection going into fatty tissue. This will reduce the effectiveness of the product or at worst make it totally ineffective. Using too large a needle will cause unnecessary distress to small pigs and possibly cause damage.

Injection technique: There are two main methods of injection, into the muscle tissue (intramuscular) or under the skin (subcutaneous). Intramuscular injection should be into the neck unless otherwise advised. The correct site is towards the top of the neck, above and behind the area of loose skin behind the ear. It is important that the needle enters at 90° to the skin, which is normally a horizontal position if the pig is standing. Subcutaneous injections are more difficult because they require greater precision in placing the product between the skin and the underlying tissues. The site of injection is the area of loose skin in the hollow behind the ear. A fold of skin is created by pinching together with the thumb and forefinger, then the needle is inserted at a slight angle to run under the skin and beneath the fold.

Identification and recording: Recording of all medicines administration is a legal requirement in many countries. The primary aim is to minimise the risk of medicines residues in pigmeat. This may occur where a pig is sent for slaughter before the end of the withdrawal period for the product used.



Procedure (cont'd)

Withdrawal periods which are shown on the medicines bottle label and in the farm **Treatment protocols**, must be strictly observed. This requires the **Medicines treatment record** to be filled in correctly which shows the date when the pig becomes outside the withdrawal period. Clear identification of the pig(s) treated which may involve tags for finishers or breeding stock and spray marks for other pigs, is necessary so that a treated pig is not sent to slaughter by mistake. In the case of gilts, sows and boars short details of treatment including the date, condition and product used and clearance date should be noted on the animal's individual record card.

Operator safety: Clearly there are some risks in using needles which penetrate skin so easily. The main risk comes from careless handling of needles or movement of the pig during injection. Needles should always be protected with a plastic cap when not in use. Where pigs are likely to be difficult to inject, especially with finishers and breeding stock, they should be restrained or snared*. The physical injury caused by accidental self injection is unlikely to be serious but if some product is injected, medical attention may be required. Data sheets for all injectable products which indicate the actions to be taken should be available in the farm office. Some oil-based vaccines have more serious effects if injected and in this case immediate medical help should be sought.

Correct disposal of waste: Veterinary waste should always be disposed of correctly, which usually involves removal and incineration by a specialist waste disposal company. Used needles should be placed in a special "sharps" container immediately until removal takes place. Detailed procedures for all types of potentially hazardous materials are given in the farm **Waste disposal protocol**.



Question and Answer	Check correct answers	
Q: What may be the result of poor hygiene during injection? <ul style="list-style-type: none"> • Infection or an abscess at the injection site 	1	
Q: What is the result of too little or too much product being injected? <ul style="list-style-type: none"> • Too little - product may be ineffective • Too much - is wasteful and adds cost 	2	
	3	
Q: How is the correct dosage rate arrived at? <ul style="list-style-type: none"> • From the department <i>Treatment protocols</i> • From the dosage rate (ml/kg) on the medicine bottle label, using the <i>Dose calculator for injected medicines</i> chart 	4	
	5	
Q: What may happen if the needle length is incorrect? <ul style="list-style-type: none"> • The product may be injected into the wrong tissue, rendering it ineffective 	6	
Q: What may happen if too long or large a gauge needle is used for smaller pigs? <ul style="list-style-type: none"> • It may cause physical damage and distress 	7	
Q: Describe the correct part of the neck for intramuscular injection <ul style="list-style-type: none"> • Towards the top of the neck above and behind the area of loose skin behind the ear 	8	
Q: What is the best way of giving a subcutaneous injection? <ul style="list-style-type: none"> • By creating a fold of skin by pinching with the thumb and forefinger on the loose skin behind the ear, then inserting the needle at a slight angle to run under the skin and beneath the fold created 	9	
Q: What is the primary aim of medicines recording and pig identification? <ul style="list-style-type: none"> • To minimise the risk of medicines residues in pigmeat 	10	
Q: Where can the withdrawal period for a medicine be found? <ul style="list-style-type: none"> • On the medicine bottle label • In the department <i>Treatment protocols</i> 	11	
	12	
Q: What can be done to minimise the risk of injury to the operator by needles? <ul style="list-style-type: none"> • Protect with a plastic cap when not in use • Restrain or snare pigs that are likely to be difficult to inject 	13	
	14	

continued on next page



Question and Answer	Check correct answers	
<p>Q: What should be done with used needles?</p> <ul style="list-style-type: none"> • Place in a “sharps” container • Send for incineration by a specialist waste disposal company or dispose of according to the farm Waste disposal protocol 	15	
	16	
<p>Total up correct answers</p> <p>Number of correct answers required</p> <p>Sign trainees record of achievement</p> <p>If less than 11 correct answers, arrange date for second review</p>		
	11	

