

## Hormone Use in Swine Production and Worker Safety

Author  
Kerry Leedom Larson, National Pork Board

Reviewer  
Jennifer Koeman, National Pork Board  
Gordon Moore, Moore Ag Safety

### Introduction

Many drugs or chemicals used in conventional swine production facilities can impact employee health. Drugs used for reproductive purposes in swine are most dangerous to female employees. Although employees may be exposed by different routes, accidental injection is particularly of concern. Little is known about needlestick rates in female pork production workers. Limited research shows that of female veterinarians, 75% reported a needlestick in a 12 month period in Australia, and 64% reported a needlestick after graduation in the U.S. Of veterinary technicians more than 90% have experienced a needlestick during their career. However, needlestick events are probably underreported. Other routes of exposure to hormones may occur. Some hormones can be absorbed through the skin. Handling of hormones by males may be an exposure risk for spouses through handling clothing or by skin contact.

### Objectives

- List hormones commonly used in swine production.
- Provide guidelines to reduce exposure for female employees.

### Reproductive Hormones

Although you may be familiar with different brand names, there are several reproductive hormones that are commonly used in swine production. These drugs belong mostly to three different classes: prostaglandins, FSH/LSH compounds, and progesterones (Table 1). Accidental exposure to these hormones may have serious consequences for female workers, especially pregnant women.

Table 1. Hormones used in swine production.

Drug class	Example trade names*	Administration	Use in swine	Potential effects in pregnant women
Prostaglandins	Prostamate® Estrumate® Lutalyse®	Injection	Induction of farrowing, or pregnancy termination at early stages	Premature menstruation, induction of labor, or abortion
FSH/LSH compounds	PG600®	Injection	Stimulation of estrus in non-cycling gilts and sows	Disruption of the menstrual cycle, uterine or abdominal cramping, increased or decreased uterine bleeding
Progesterones	Matrix® Regumate®	Oral	Estrus synchronization in gilts or sows	Disruption of the menstrual cycle or prolongation of pregnancy
n/a	Oxytocin	Injection	Stimulation of uterine activity and milk let down	Uterine contractions

\*Trade names are used solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee or warranty of the product.

In addition to the reproductive hormones, there may be other products used in facilities that could potentially have a medical impact. One such example is a group of drugs called corticosteroids (e.g. dexamethasone and Predef® 2x). They are known to disrupt pregnancy in animals.

## Finding Information on Reproductive Hormones

Hazard communication is an important part of safety programs; it is required under the OSHA agriculture standard known as 29 CFR 1910.1200. The objectives of this standard are:

- To ensure that the hazards of chemical substances used by [Company Name Here] are identified and appropriate safeguards are instituted
- To ensure that employees are trained in the hazards of the chemical substances with which they work, and
- To facilitate compliance with OSHA Standard 1910.1200. Note: your state may have requirements in addition to the federal standard. Check with your state OSHA official for more information.



Your employer should always direct you to the MSDS sheet for the specific reproductive hormones used in your facility. This will inform you of any other risks or treatments associated with that drug. If you have questions about your safety after reading the MSDS for any compound used in your facility, you should consult with a physician to assess any specific health risks that you may have.

To ensure you understand the safety concerns related to compounds used in your facility and that you are confident in your ability to work with them, your employer will have you sign a Hazardous Chemical Disclosure Form. This form will be specific to the chemicals used in the facility. Women who do not feel comfortable working with hormones do not have to sign the form nor are they obligated to perform the specific task. Some of the reproductive hormones containing drugs used in a hog facility are dangerous to all employees. If employees suffer from medical conditions listed on the MSDS, they may be exempted from performing tasks involving that drug.

## Reducing Exposure to Reproductive Hormones

Accidental exposure to reproductive hormones may occur by several routes. For drugs that are administered to pigs by the oral route (i.e. progesterone compounds), workers should wear gloves and avoid skin contact with the drug. Accidental injection is also a route of exposure to reproductive hormones. There are several ways that workers can reduce their risk of needlestick injuries:

- Educate all employees and volunteers about safe sharps handling and needlestick avoidance.
- Do not recap needles unless absolutely necessary. If recapping is necessary, use a one-hand scoop method, hold the cap with a mechanical device such as forceps or use a needle recapping device.
- Ensure convenient access to sharps containers in all areas where needles might be used.
- Promptly dispose of needles into approved sharps containers.
- Never use temporary or unapproved containers for sharps.
- Never try to remove anything from a sharps container.
- Do not fill sharps containers beyond the designated fill limit.
- Consider the use of protective devices such as retractable needles or hinged syringe caps.
- Do not walk around with an uncapped needle.
- Ensure all personnel report all needlestick injuries and record information regarding the circumstances.

The National Association of State Public Health Veterinarians recommends that injuries should be reported, investigated, and documented. Practice managers should develop policies that encourage reporting. An incident report form, such as OSHA form 300, should include details as follow:

- Date, time, and location of the incident.
- Name of person injured or exposed.
- Names of other persons present.
- Description of the incident.
- Whether or not a health-care provider was consulted.
- Plans for follow-up.

## Summary

You may be asked to work with reproductive hormones in the pork production environment. Hormones may have adverse reproductive effects in women, especially when pregnant. Pregnant workers should avoid handling hormones altogether. For non-pregnant women, care should be taken to avoid exposure to reproductive hormones through the skin or by accidental injection. OSHA requires employers to furnish information to employees (via the MSDS) about hormones used on the farm.

## References

Donham KJ and A. Thelin. 2006. *Agricultural Medicine: Occupational and Environmental Health for the Health Professions*. Ames, IA: Blackwell Publishing; p.352-353.

Leggat PA, Smith DR, Speare R. Exposure rate of needlestick and sharps injuries among Australian veterinarians. *J Occup Med Toxicol*. 2009 Aug 28;4:25.

National Association of State Public Health Veterinarians. *Compendium of Veterinary Standard Precautions for Zoonotic Disease Prevention in Veterinary Personnel*. [www.nasphv.org/Documents/VeterinaryPrecautions.pdf](http://www.nasphv.org/Documents/VeterinaryPrecautions.pdf)

National Pork Board. *Pork Production Safety System*. <http://www.pork.org/Resources/1000/WorkerSafetyPorkProduction-SafetySystem.aspx>

University of Nebraska–Lincoln Extension. *Safe Use of Animal Medicines*. <http://www.ianrpubs.unl.edu/epublic/pages/publicationD.jsp?publicationId=414>

Weese JS, Faires M. A survey of needle handling practices and needlestick injuries in veterinary technicians. *Can Vet J*. 2009 December; 50(12): 1278–1282.

Weese JS, Jack DC. Needlestick injuries in veterinary medicine. *Can Vet J*. 2008 Aug;49(8):780-4.

Wilkins JR 3rd, Bowman ME. Needlestick injuries among female veterinarians: frequency, syringe contents and side-effects. *Occup Med (Lond)*. 1997 Nov;47(8):451-7.