

**Se webinarret "The piglet's journey – Hernia" på SEGES.TV:**

**<https://www.seges.tv/video/81154616/the-piglets-journey-from-8>**



**Se tilmeldingsside her:**

**<https://www.seges.tv/live/75754782/e03c0a598948e8449f5d>**

**Præsentationen fra webinarret kan ses af de følgende slides.**

Hvis du ikke kan få adgang til videoen, kan du kontakte SEGES Innovation P/S. Videoen er dokumenteret på SEGES.TV og i projektets arkiv.

STØTTET AF

**Svine**afgiftsfonden

**SEGES**  
INNOVATION

# Hernia in pigs

Trine Hovmand-Hansen, vet, DanVet

Tina Birk Jensen, vet, SEGES Innovation

24th of August 2022

STØTTET AF  
**Svineafgiftsfonden**

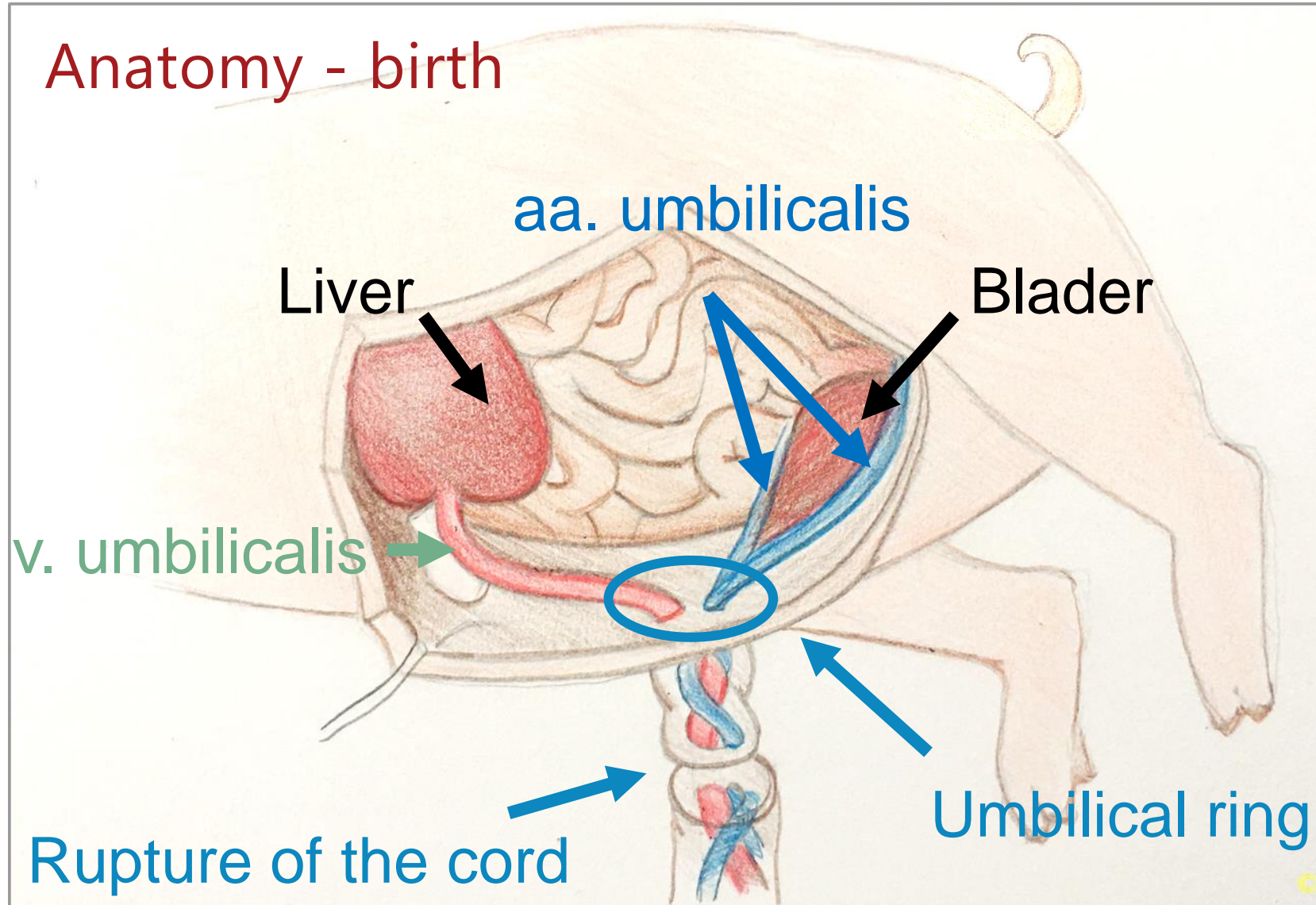
**SEGES**  
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# What are we going to talk about?

- Hernia – what is it?
- Which piglets are at risk of getting a hernia?
- What can you do to reduce the risk?
- Should the pig be euthanized? How do you make the decision?

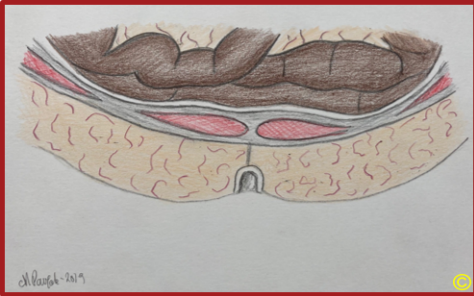


# How is the development?



# Umbilical outpouchings (UO)

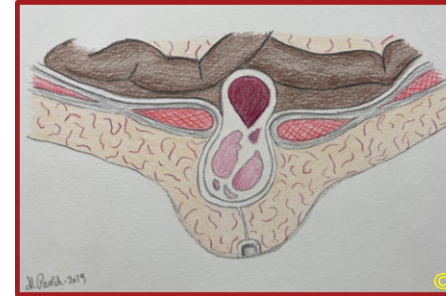
1) Normal umbilical area



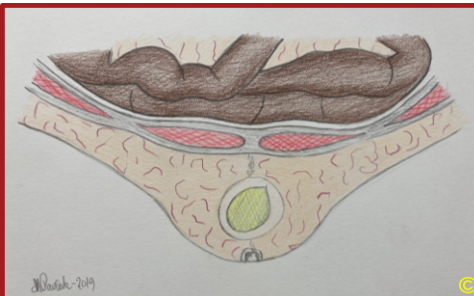
2) Hernia



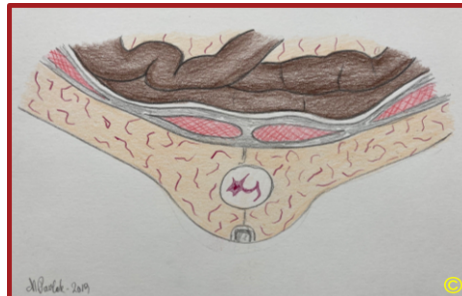
3) Cyst



4) Abscess



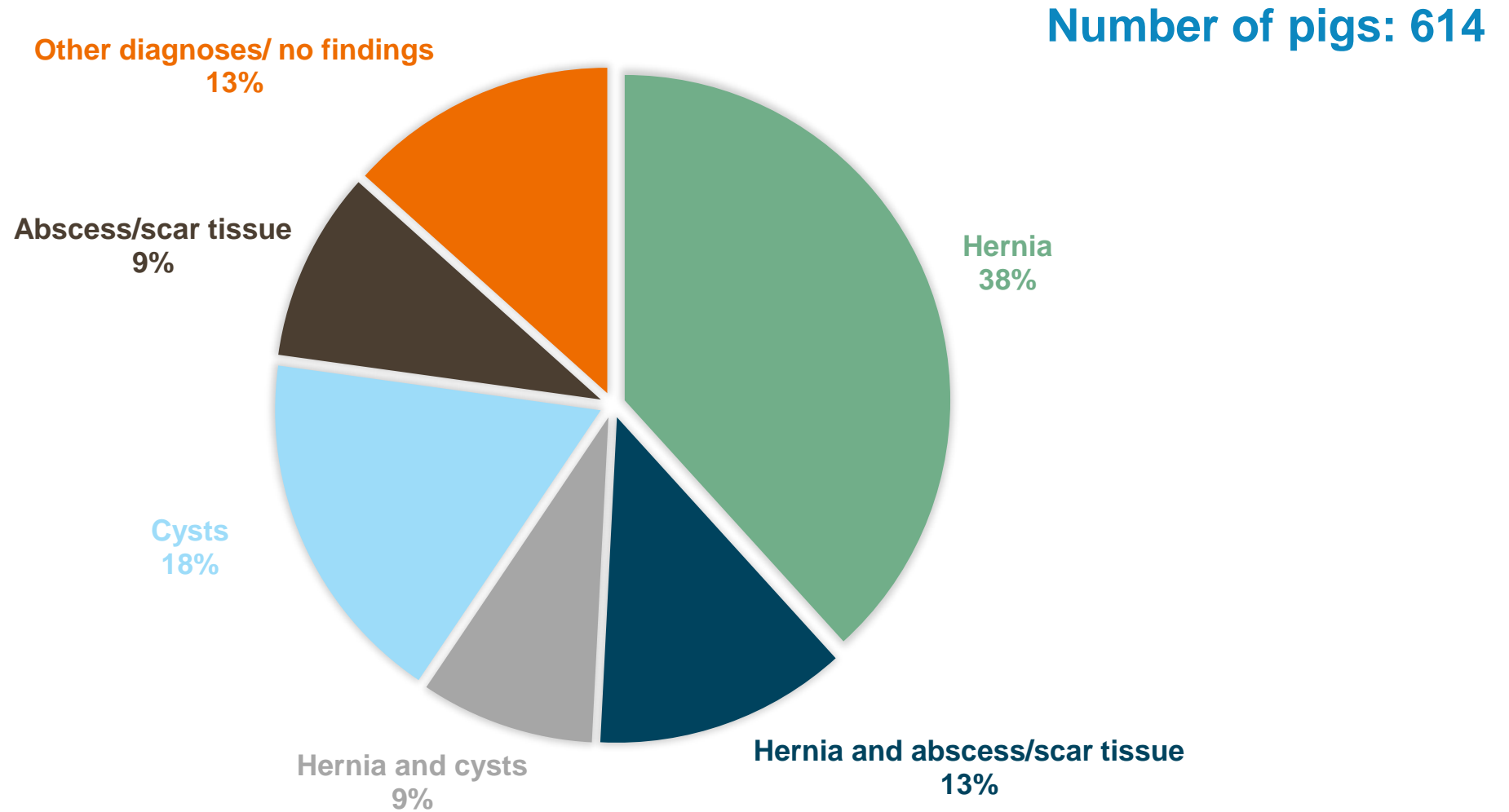
5) Scar tissue



6) Proliferation

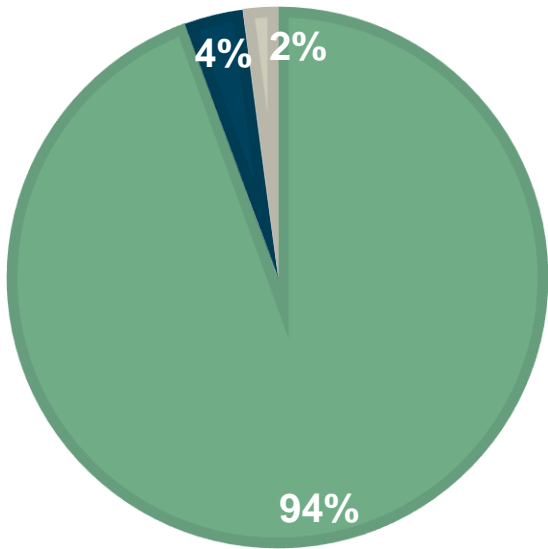


# What do we find?

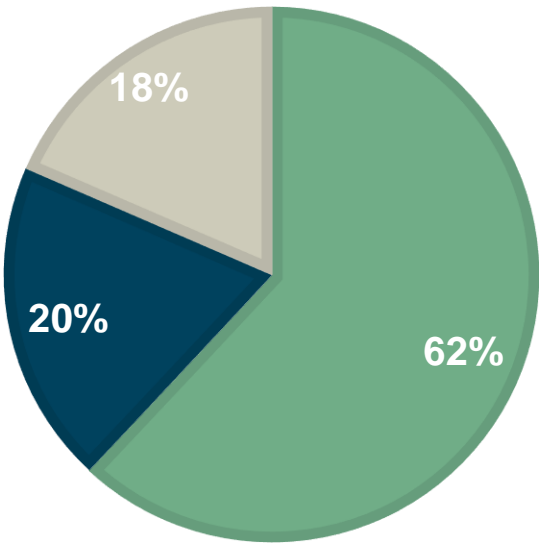


# Diagnoses vary with different age-groups

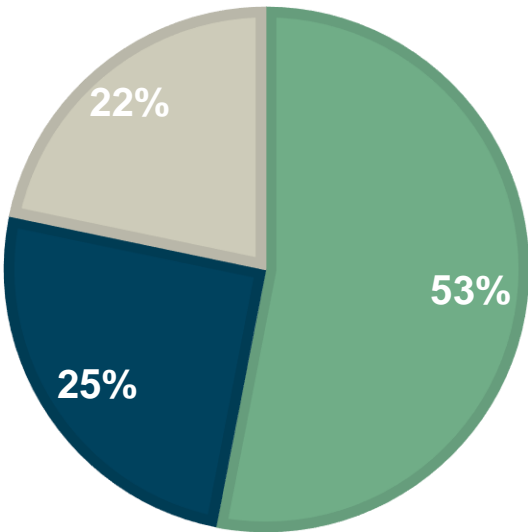
DIAGNOSE FREQUENCY, PIGLETS (%)



WEANERS (%)



FINISHERS (%)



■ Hernia   ■ Enterocystoma   ■ Absces/fibrosis

# Higher risk of complications

- Increased risk of wounds in hernia and enterocystoma
- Increased risk of strangulation and adherence in hernia

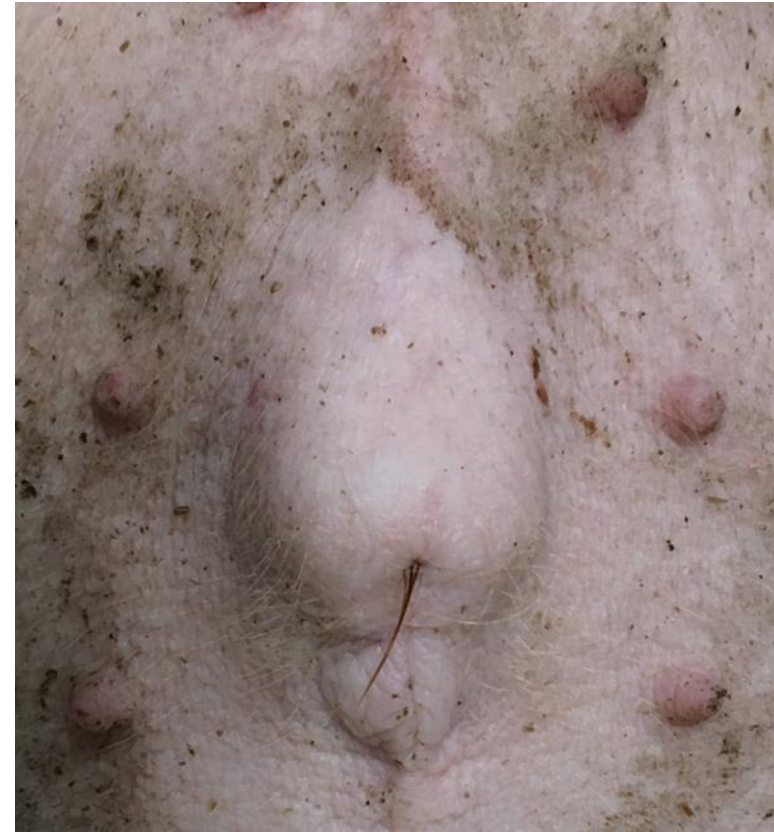


## Approximately 15 % of the UOs spontaneously disappear before 30 kg

**Discovered in 2nd week (20/12-2017) -**



**Regressed 8 weeks later (15/2-2018)**



# Which piglets are at risk of getting a hernia?



Livestock Science  
Volume 251, September 2021, 104654



## Early risk factors, development, disappearance and contents of umbilical outpouching in Danish pigs

Trine Hovmand-Hansen <sup>a</sup>, Tina B. Jensen <sup>b</sup>, Kaj Vestergaard <sup>b</sup>, Mai Britt F. Nielsen <sup>b</sup>, Páll S. Leifsson <sup>a</sup>, Henrik E. Jensen <sup>a</sup>

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<https://doi.org/10.1016/j.livsci.2021.104654>

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## Field study – what did we do?

- **2 farrow-to-finisher herds - 3031 pigs (Landrace x Yorkshire x Duroc)**
- Period: Birth to slaughter (115kg)
- Pigs with UOs were clinically examined once a month
- 255 pigs developed an umbilical outpouching



## Field study – what did we do?

- Individual identification mark at birth
- No antibiotic at birth
- **All pigs were housed, feed and manage without any special treatment!**



- Weight
- Gender
- Length of the cord
- Immaturity
- Parity
- Littersize
- **Umbilical findings**



# Umbilical findings at birth

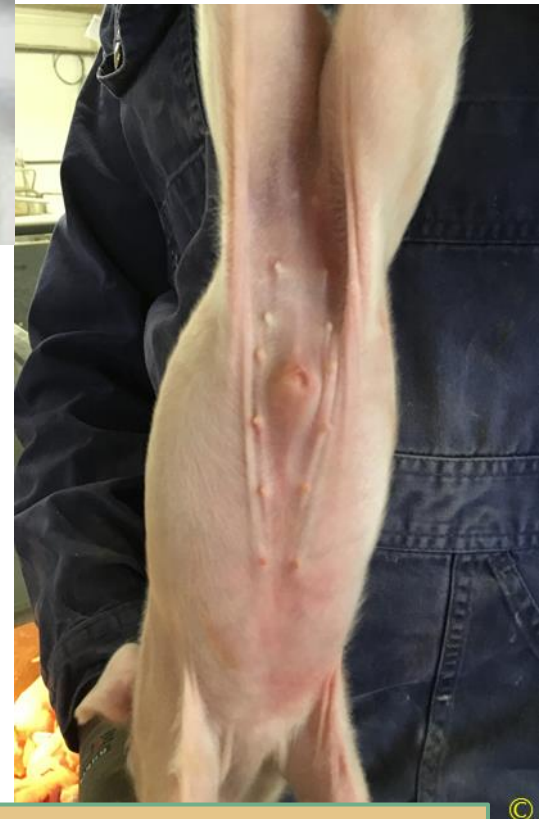
Prolonged moist umbilical cord



Red or swollen



Ruptured umbilical cord/bleeding



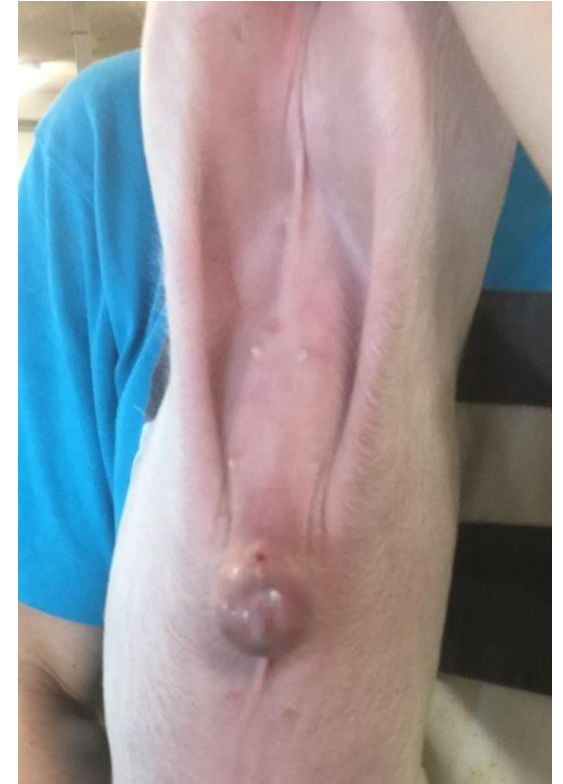
# Umbilical findings in 2nd week after birth



Red, swollen or infectious



Healed or healing protrusion



Umbilical outpouching  
> 0.5 cm

# Which piglets are at risk of getting a hernia?

- **Inborn factors**

- Cysts

Originating from the early  
embryonic stages

- Female pigs
- Immature pigs (dolphin head)

Muscle weakness

# Which piglets are at risk of getting a hernia?

- **Environmental factors**

- Prolonged moist umbilical cord
- Umbilical infection (Red/ swollen/ pus)
- (Detachment, rupture or bleeding)



**Insufficient  
healing of  
the muscles**



# Further risk factors described from literature

- **Inherited factors**

- *Genes: CAPN9, OSM, LIF, SRC, ABCC4*
- *NUGGC (Duroc)*



Muscle weakness  
Wound healing


- **Management factors**

- Extensive traction or irritation of the umbilical cord
- Moving to a nursery sow
- Other ??

# What can you do to reduce the risk?

**10 recommendations**

## Reduce the risk of hernia in pigs



**1**

The farrowing unit must be disinfected and dry.

**3**

Provide healthy surroundings for uncomplicated farrowings.

**5**

Shorten the umbilical cord to max. 3 cm by burning of the tip. Do not rush the procedure and avoid pulling the umbilical cord. Remember to disinfect the scissors, if these are used. The question of whether to dock a wet or dry umbilical cord is still unclear.

**7**

When shorten the umbilical area, it can be covered with a bandage.

**9**

Do not squeeze the pig's stomach during castration.

**2**

The sow in the farrowing unit must be surrounded by straw in the laying area.

**4**

Place a moderate amount of sawdust or potato flour, for instance mixed with Stalosan F® or other disinfectants inside the covered creep area.

**6**


Disinfect the umbilical area with chlorhexidine alcohol or iodine alcohol. Cydo spray or other sprays with antibiotics may also be applied as long they are registered as antibiotics.

**8**


Lift the pig and put it back into the unit by holding it under its stomach without squeezing.

**10**

Provide lots of colostrum to the piglets and avoid diarrhea and coughing.



[svineproduktion.dk](http://svineproduktion.dk)

**SEGES**  
Danish Pig Research Centre

# Focus on management

- **Farrowing units must be disinfected and dry**
- **Make sure the farrowings are uncomplicated**
  - The sow needs to be in a good condition before farrowing
  - Enough to eat
  - The body condition is good
  - Monitor the farrowing



# Focus on management

## Give the piglets a good start!

- Provide lots of colostrum for all piglets
- Avoid diarrhea and coughing
- Shorten the umbilical cord and disinfect the umbilical area
- Avoid pulling on the umbilical cord





# Focus on management

## Other good advice:

- Lift the pig under the stomach – and avoid squeezing
- Cover the umbilical area with a bandage
- Disinfect hands between each litter
- Disinfect the scissors



# Management of the new born piglet

- Should the umbilical cord be cut wet or dry?
- Does the disinfection on the day at birth of either a cut wet or dry umbilical cord have an effect?
- Does the sex, daily weight gain and movement of pigs influence the development of umbilical outpouchings?



Ashley Norval, Master Thesis  
University of Copenhagen  
SEGES Innovation

# Study design

Herd with 1.800 sows

A total of 1.476 piglets from 114 pens examined from birth to weaning

|         | Treatment groups  |
|---------|---|
| Group A | Wet umbilical cord, cut to 3 cm   |
| Group B | Wet umbilical cord, cut to 3 cm, sprayed with chlorhexidine and dipped in Stalosan F® |
| Group C | Dry umbilical cord, cut to 3 cm   |
| Group D | Dry umbilical cord, cut to 3 cm, sprayed with chlorhexidine and dipped in Stalosan F® |

**For each piglet the following were registered:**

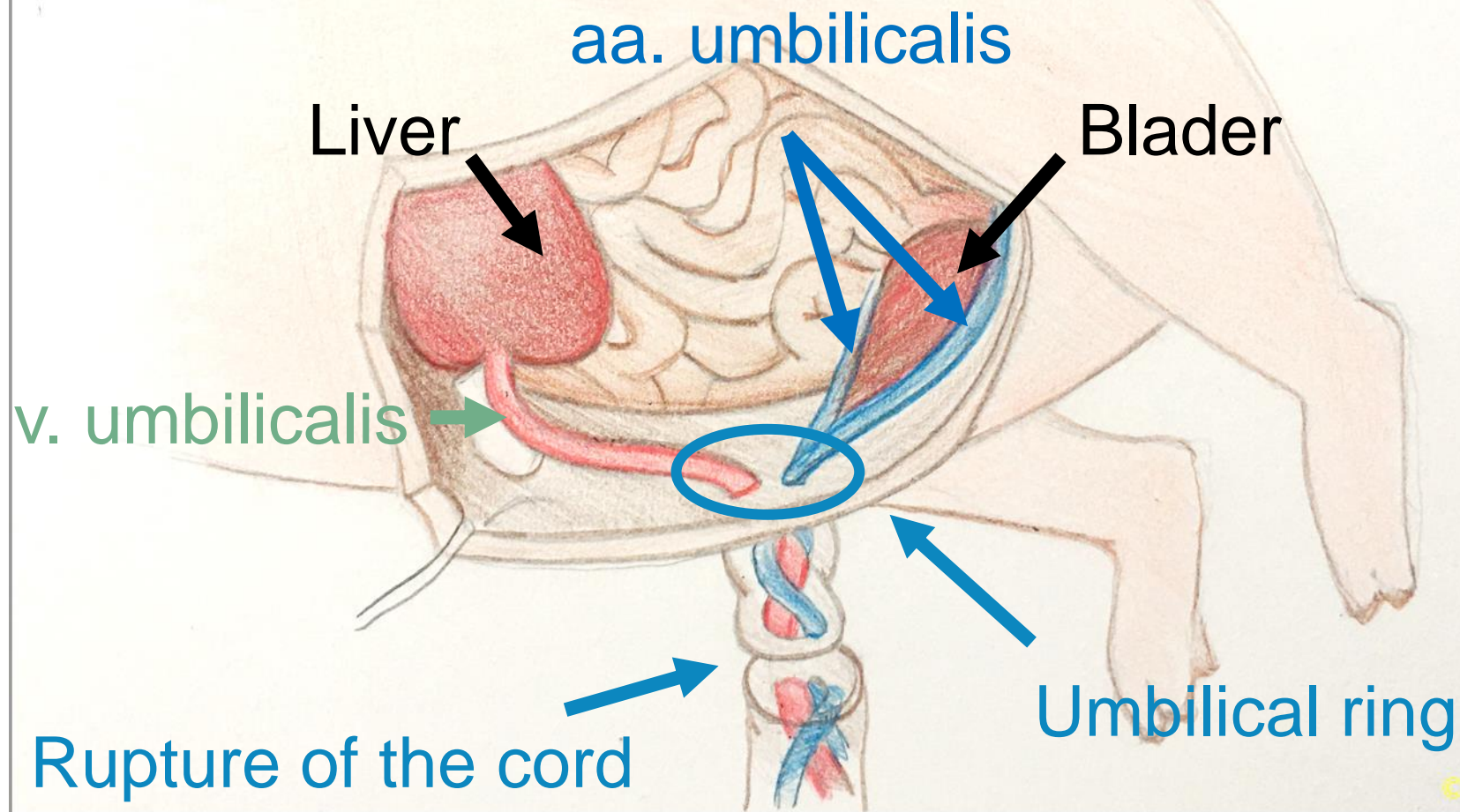
- Birth weight
- Sex
- Weight at weaning
- Weaned from birth pen (yes/no)
- Umbilical outpouching (yes/no)

# Results

|                                      | Number of pigs | Hernia             | Non<br>manipulatable<br>outpouchings | Total umbilical<br>outpouchings |
|--------------------------------------|----------------|--------------------|--------------------------------------|---------------------------------|
| <b>Group A<br/>(Wet cord)</b>        | 370            | 38 (10 %)          | 23 (6,2 %)                           | 61 (16,2 %)                     |
| <b>Group B<br/>(Wet cord + dis.)</b> | 370            | 32 (8,6 %)         | 18 (4,9 %)                           | 50 (13,5 %)                     |
| <b>Group C<br/>(Dry cord)</b>        | 360            | 36 (10 %)          | 7 (1,9 %)                            | 43 (11,9 %)                     |
| <b>Group D<br/>(Dry cord + dis.)</b> | 376            | 34 (9 %)           | 18 (4,8 %)                           | 52 (13,8 %)                     |
| <b>Total</b>                         | <b>1.476</b>   | <b>140 (9,5 %)</b> | <b>66 (4,5 %)</b>                    | <b>206 (14,0 %)</b>             |



## Anatomy - birth

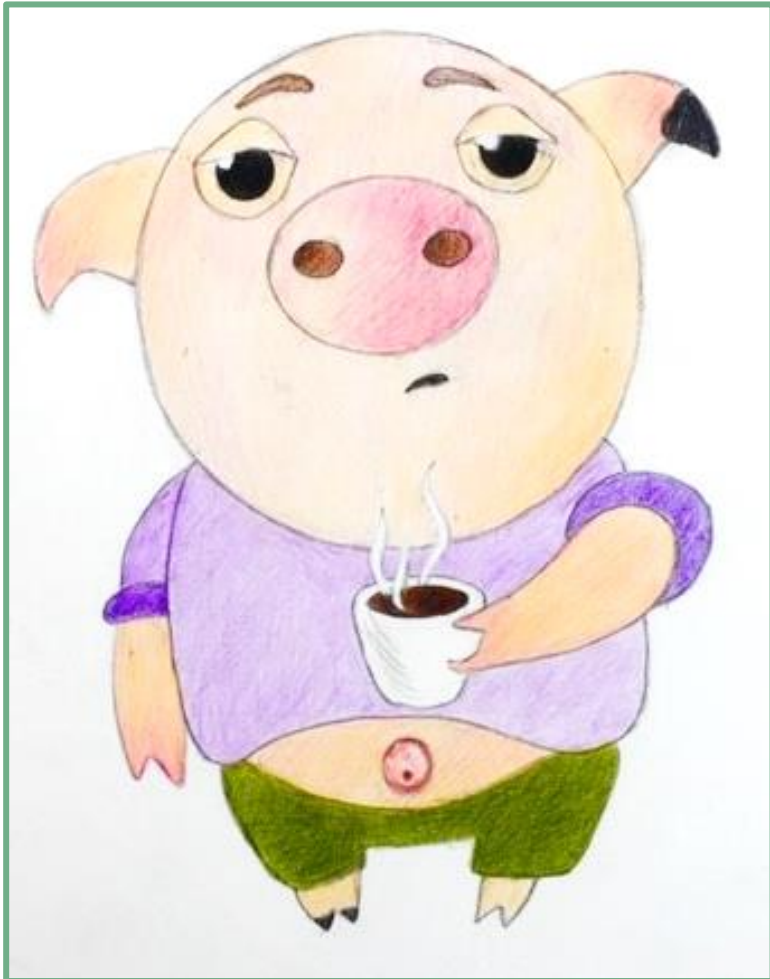


# Results and conclusion

|                              | Number of pigs | Pigs with outpouchings |
|------------------------------|----------------|------------------------|
| <b>Weaned from birth pen</b> |                |                        |
| Yes                          | 217            | 18 (8 %)               |
| No                           | 1.206          | 185 (15 %)             |
| <b>Sex</b>                   |                |                        |
| Male                         | 751            | 72 (10 %)              |
| Female                       | 725            | 134 (18 %)             |

## Conclusion:

- Pigs weaned from birth pen have **lower odds** for developing UO
- Female have **higher odds** for developing UO
- Piglets with a low daily gain have **higher odds** for developing UO
- No effect of treatment group



**Should I be  
euthanized or  
can I survive  
until  
slaughter????**

# Survival of pigs with an UO



Preventive Veterinary Medicine

Volume 191, June 2021, 105343



## Survival of pigs with different characteristics of umbilical outpouching in a prospective cohort study of Danish pigs

Trine Hovmand-Hansen <sup>a</sup>  , Søren Saxmose Nielsen <sup>a</sup>, Tina B. Jensen <sup>b</sup>, Kaj Vestergaard <sup>b</sup>, Mai Britt F. Nielsen <sup>b</sup>, Henrik E. Jensen <sup>a</sup>

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<https://doi.org/10.1016/j.prevetmed.2021.105343>

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## Definition of an umbilical outpouching

An umbilical outpouching was defined as a protrusion in the umbilical area.

$H > 0.5 \text{ cm}$

|

255 (8%) pigs developed an UO  $> 0.5 \text{ cm}$



# Clinical examination



- All pigs were screened once a month for the development of new UOs



- 776 clinical examinations (249 pigs)
- 6 pigs died before 1th examination
- 3,12 times in average (1-9)



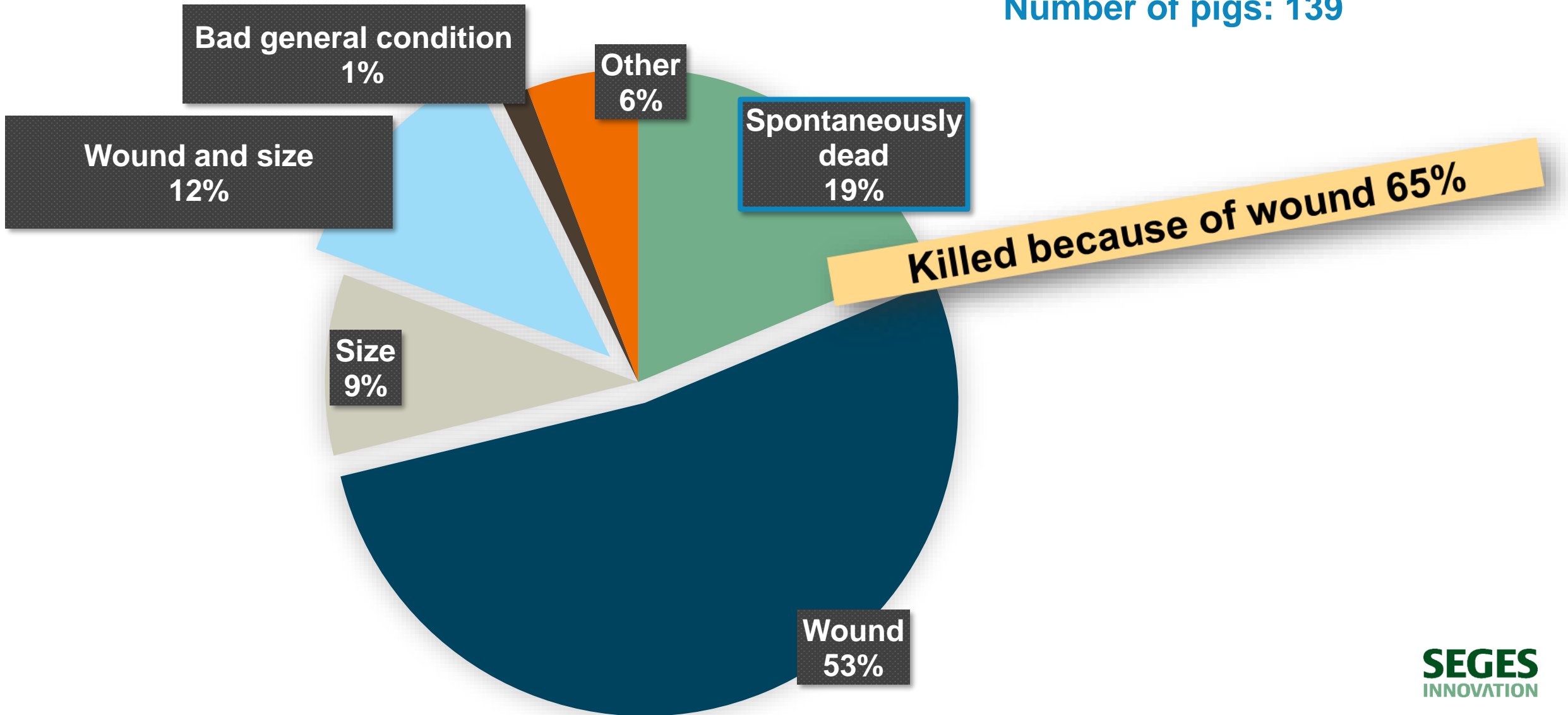
# How many pigs died before slaughter?

Number of pigs: 242



# What was the course of death?

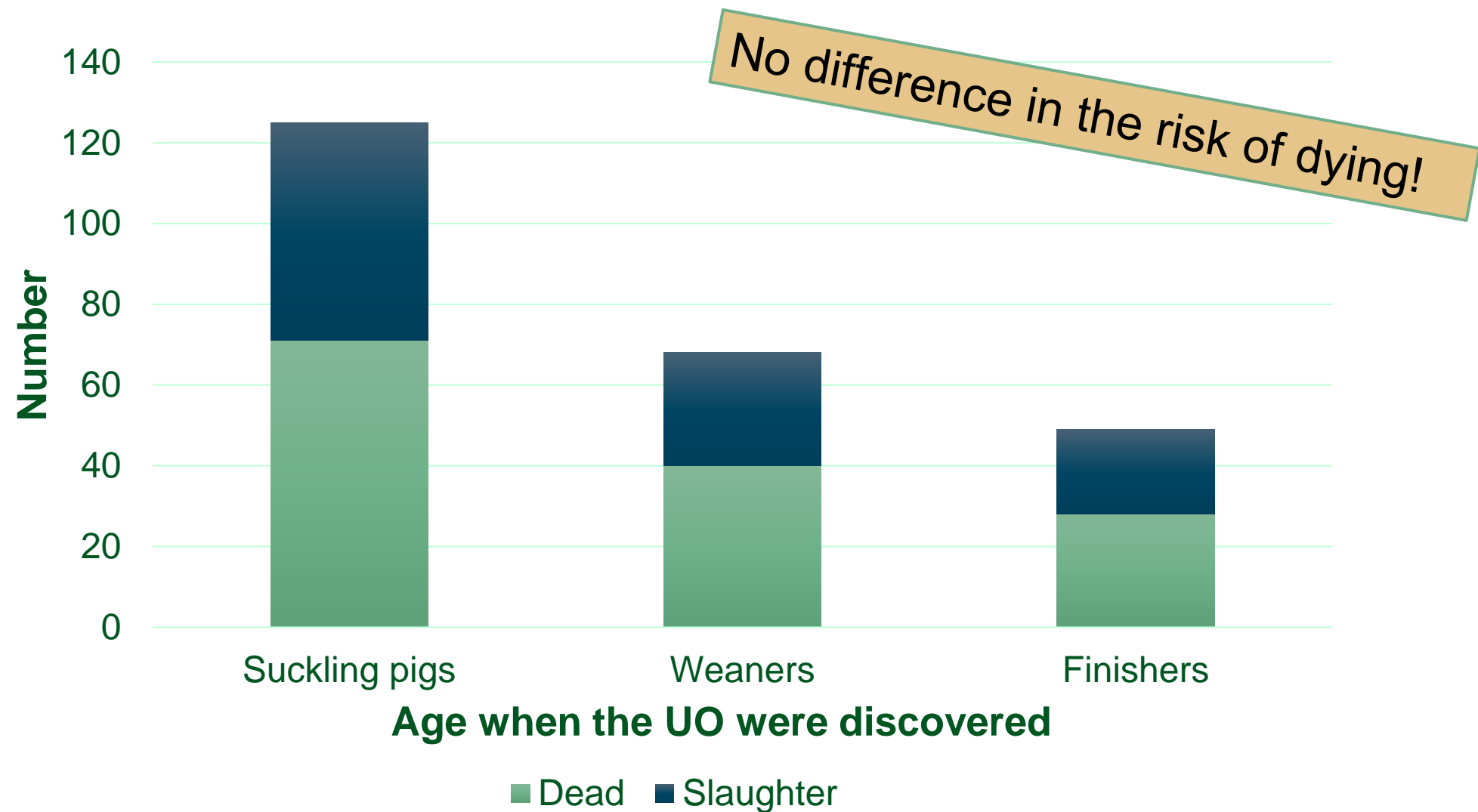
Number of pigs: 139



Pig 215

| Date     | History              |
|----------|----------------------|
| 20-02-18 | Newborn              |
| 07-03-18 | UO discovered        |
| 13-03-18 | Bloodsample          |
| 20-03-18 | Clinical examination |
| 30-04-18 | Clinical examination |
| 24-05-18 | Clinical examination |
| 27-06-18 | Clinical examination |
| 24-07-18 | Clinical examination |
| 25-07-18 | Euthanasia           |

# Do pigs developing UO early have a higher risk of dying?



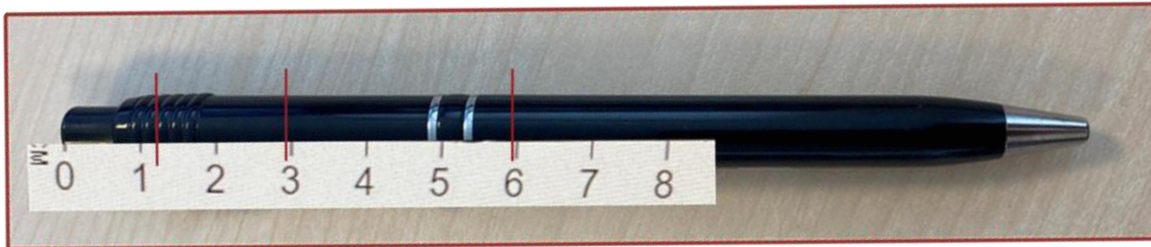
Pig 215

| Date     | History              |
|----------|----------------------|
| 20-02-18 | Newborn              |
| 07-03-18 | UO discovered        |
| 13-03-18 | Bloodsample          |
| 20-03-18 | Clinical examination |
| 30-04-18 | Clinical examination |
| 24-05-18 | Clinical examination |
| 27-06-18 | Clinical examination |
| 24-07-18 | Clinical examination |
| 25-07-18 | Euthanasia           |

# Survival of pigs with an UO

Risk of wounds and death is increased if:

- ✓ Pigs are in a bad general condition (dry snout, sticky hair, unthrivety)
- ✓ Pigs have a blue-/redish skincolor at the UO
- ✓ Pigs have a **BIG** UO (Suckling pigs > 1.5 cm, weaners > 3 cm og finishers > 6 cm)



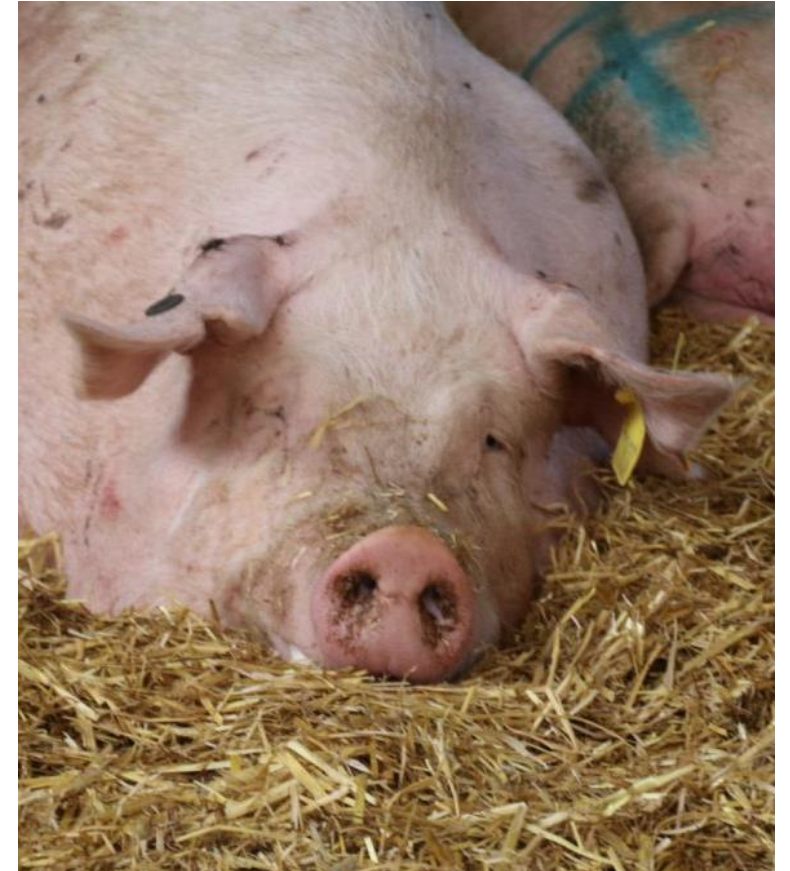


# Use of sick pens

**Pig with UO must be moved to sick pen when:**

- A large UO (more than 15 cm on a slaughter pig)
- Wounds on the UO
- Warm or sore UO

**Remember soft and dry bedding in the sick pen!**



# Take home messages

## Things you need to do:

- Dry farrowing pens
- Fast drying of the piglets
- Cut the navel cord when dry
- Be careful when handling the piglets
- Make sure to provide colostrum to the piglets
- Keep movement of piglets to a minimum



# Take home messages

## Keep an eye on:

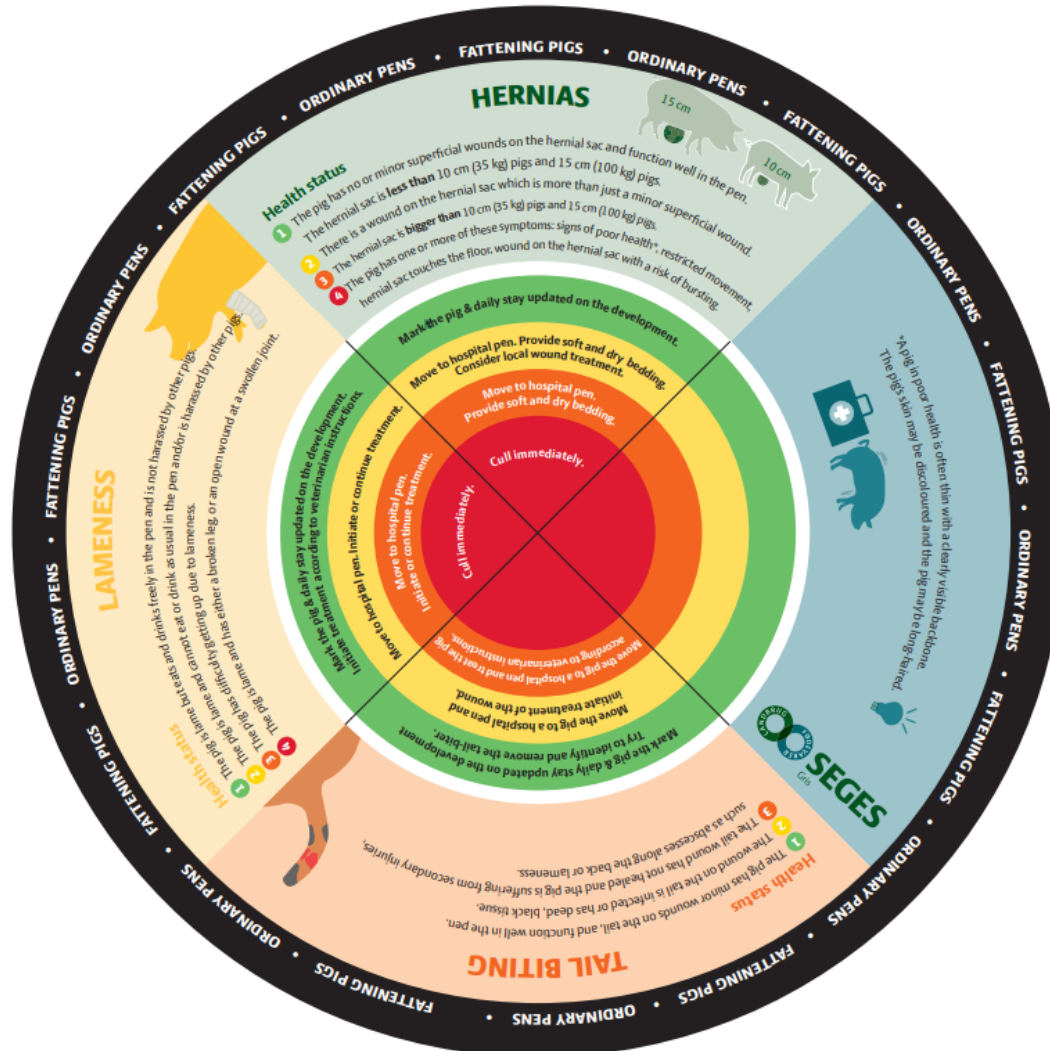
- Immature piglets
- Piglets with a red and swollen umbilical area
- Piglets in a bad condition (with low daily weight gain)
- Female piglets



## Pigs with UO must be euthanized when:

- In a bad condition
- A serious wound on the UO
- Movement of the pig is affected
- Skin colour of UO is blue- /redish

# “Sundhedshjulet” - a help to make the right decision



# Any questions?

