

## Emergency slaughter of pigs due to immobility

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**ABSTRACT:** Immobility of pigs is a reason for emergency slaughter. The goal of this project was to determine the proportion of emergency slaughters due to immobility in pigs. In a selected pig slaughter facility, emergency slaughters were monitored in the period between 1997 and 2002 and the numbers of pigs slaughtered due to immobility reasons were monitored. The conclusion was that the proportion of sows slaughtered due to immobility reasons is high (31.3%) in comparison to other pigs (9.7%) and this difference was found to be statistically significant ( $P < 0.01$ ). The objective of the project was also to determine the causes of immobility in emergency slaughtered pigs. Veterinary carcass, meat and organs inspections revealed that locomotor apparatus diseases (pelvic injuries, spinal contusion injuries or injuries of limbs, hind limb paresis, limb injuries, joint and claw inflammations) were more frequent causes of emergency slaughters due to immobility in pigs than general and other conditions (cachexia and gastrointestinal tract disorders, ataxia, tetany, circulation disorders including heart insufficiency, post-delivery complications, selection and others). In sows, the number of immobile animals with the diagnosis of locomotor apparatus diseases was high (90.0%) in comparison to the general condition and other disease diagnoses (10.0%); the difference was found to be statistically significant ( $P < 0.01$ ). In other pigs, the number of immobile animals with the locomotor apparatus disease diagnosis was particularly high (96.4%) in comparison to the general condition and other disease diagnoses (3.6%); the difference was found to be statistically significant ( $P < 0.01$ ). The results evidence that in sows as well as in other pigs, immobility necessitating emergency slaughters is due to unsuitable handling resulting in injuries and pareses of the locomotor apparatus rather than insufficient care leading to general conditions and other diseases.

**Keywords:** locomotor apparatus diseases; limb injuries; joint and claw inflammations; pelvic injuries; hind limb paresis; sows; pigs

Immobility of pigs is a reason for emergency slaughter. An emergency slaughter is a slaughter of a food animal that has a disease, that is suspected to have one, or that is injured. These animals are slaughtered in facilities designed for this purpose or in slaughterhouse sections used for this purpose or on the premises of a regular slaughterhouse but at separate times. The incidence of immobile pigs can be an indicator of the level of care and handling of pigs at farms and at transport. Pig immobility is usually the result of an ongoing disease that may affect the locomotor apparatus or that can be the outcome of a general condition. Determination of

the characteristics of the causes of immobility in pigs may be the starting point for measures that can lead to a reduction of the numbers of immobile pigs and thus also to a reduction of the numbers of emergency slaughters.

Causes of immobility in pigs can be identified after their emergency slaughter in the slaughterhouse on the basis of the veterinary carcass, meat and organs inspections during the assessment of their edibility. Kofler et al. (2001) emphasized the importance of assessing the findings revealed by the inspection at slaughterhouse facilities. Also Berns et al. (1997) stress the impact of the data collected at

slaughterhouse meat inspections. This inspection is based on the assessment by visual inspection, palpation and food animal body and organ cross-section examination and also on the laboratory results acquired from the collected tissue samples, scraping samples and impression smear samples.

Pig slaughters and the findings of the veterinary carcass inspections of slaughtered pigs in the Czech Republic were studied by Kozak et al. (2002, 2003). They found that findings of non-infectious origin were more frequent than those of infectious origin. Similar findings were obtained for cattle, too (Vecerek et al., 2003a).

Fattened pig organ assessment in slaughterhouse facilities in the Czech Republic was the subject of the project undertaken by Vecerek et al. (2004). They found that the highest frequency of findings is in the lungs of pigs. Similar findings were encountered with in cattle as well (Vecerek et al., 2003b).

Grest et al. (1997) studied fattened pigs inspection findings from six major slaughterhouse facilities in Switzerland. They monitored lung findings in 8 921 slaughtered pigs. The most frequent findings were bronchopneumonia (21%) and diffuse pleuritis (21%). Schuh et al. (2000) found pneumonia in 83.3% of animals, pleuritis in 26.3%, pericarditis in 2.6% and milk spots in the liver in 47.5% of pigs slaughtered in Styria (Austria). Kofler et al. (2001) studied the incidence of findings in eight selected slaughterhouse facilities in 1999 and 2000. They found that in 43.7% of animals, various levels of pneumonia were present; 22.7% of animals suffered from chronic pleuritis, 6.8% from chronic pericarditis, and 45.6% from milk spots in the liver.

Szazados (1992) studied emergency slaughters of pigs, too. He monitored insufficient bleeding of emergency slaughtered pigs at slaughterhouse facilities and the subsequent meat edibility assessment. According to his conclusions, the cause of insufficient bleeding is acute heart insufficiency accompanying the porcine stress syndrome, but also other conditions such as pneumonia, pleuritis and pericarditis.

Vecerek et al. (2003c) point in relation to emergency slaughters to the high incidence of locomotor apparatus diseases as the most frequent reason for emergency slaughters of bulls (58.27%), cows (35.30%) and heifers (43.07%).

The goal of the project was to determine the proportion of emergency slaughters in pigs due to their immobility and also to detect the causes of immobility in emergency slaughtered pigs.

## MATERIAL AND METHODS

In the selected facility for food animal slaughters, emergency slaughters of pigs were monitored in the individual years between 1997 and 2002, using separate counts for sows and other slaughtered pigs.

Absolute counts of emergency slaughters were determined and relative counts of these emergency slaughters in per cent in the individual years of the monitored period of time and for the overall monitored period were calculated.

Also the numbers of emergency slaughters due to immobility were monitored and the numbers of these emergency slaughters in per cent in the individual years of the monitored period of time and for the overall monitored period were calculated.

The individual findings that presented the causes of immobility of pigs were recorded. From the locomotor apparatus diseases, the following were monitored: pelvic injuries (namely rupture of the pelvic symphysis), spinal contusion injuries or limb injuries, hind limb paresis, limb injuries (including fractures, luxations, distortions, wounds, oedemas, abscesses, ligament and tendon ruptures), joint and claw inflammations (including namely the tarsus and carpus inflammations, panaritium, cheylodermatitis, phlegmons). From general conditions and other reasons of immobility of pigs, the following were monitored: cachexia and gastrointestinal tract disorders, ataxia, tetany, circulation disorders including heart insufficiency, post-delivery complications and others (including e.g. metritis, mastitis, nephritis, encephalopathy), selection etc. Absolute and relative counts were calculated for the individual findings for the whole of the monitored period.

Statistics processing of the results was done with the help of the Unistat software (Unistat Statistical Package – Unistat Limited) employing the frequency comparison module.

## RESULTS

The numbers of slaughtered animals, numbers of emergency slaughtered animals and numbers of emergency slaughtered animals due to immobility reasons in the selected facility in the individual years and for the whole of the monitored period of 1997 to 2002 are presented in Table 1.

One can conclude from the results presented in Table 1 that during the whole of the monitored period, the relative count of emergency slaughtered

Table 1. Numbers of emergency slaughtered animals

		1997	1998	1999	2000	2001	2002	1997–2002
Numbers of slaughtered animals								
Sows	No.	569	681	655	557	629	355	3 446
Other pigs	No.	9 558	9 214	8 696	8 118	10 040	9 736	55 362
Numbers of emergency slaughtered animals								
Sows	No.	93	98	94	137	136	84	642
	%	16.3	14.4	14.4	24.6	21.6	23.7	18.6 <sup>a</sup>
Other pigs	No.	108	36	139	167	83	46	579
	%	1.1	0.4	1.6	2.1	0.8	0.5	1.0 <sup>a</sup>
Numbers of emergency slaughtered animals due to immobility reasons								
Sows	No.	22	40	38	46	26	29	201
	%	23.7	40.8	40.4	33.6	19.1	34.5	31.3 <sup>b</sup>
Other pigs	No.	12	13	11	7	9	4	56
	%	11.1	36.1	7.9	4.2	10.8	8.7	9.7 <sup>b</sup>

Explanatory notes:

<sup>a</sup>the difference between the number of emergency slaughtered sows and other pigs is statistically significant ( $P < 0.01$ )

<sup>b</sup>the difference between the number of emergency slaughtered sows and other pigs slaughtered due to immobility reasons is statistically significant ( $P < 0.01$ )

sows was relatively high (18.6%) in comparison to the count of the other emergency slaughtered pigs (1.0%). This difference was found to be statistically significant ( $P < 0.01$ ). Also the proportion of emergency slaughtered sows due to immobility reasons to the count of emergency slaughtered sows was found to be high (31.3%) in comparison to this proportion of the other emergency slaughtered pigs due to immobility reasons (9.7%). This difference was found to be statistically significant ( $P < 0.01$ ).

The individual findings were recorded for emergency slaughtered pigs due to immobility reasons in the period between 1997 and 2002. The results are presented in Table 2.

One can conclude from the results presented in Table 2 that locomotor apparatus diseases (90%) rather than general conditions and other causes (10%) were more often the causes of emergency slaughters due to immobility in sows. This difference was found to be statistically significant ( $P < 0.01$ ). From among the individual causes of immobility of sows, the most commonly found ones were hind limb pareses, pelvic injuries and limb injuries.

The other monitored causes (spinal contusion injuries and limb injuries, joint and claw inflammations, selection, cachexia and GIT disorders, ataxia, tetany, circulation disorders including heart insufficiency, post-delivery complications and other disorders) were represented at incidence levels of only several per cent or less than one per cent. It is clear from the presented results that the key causes of emergency slaughters of sows due to immobility reasons are connected with the locomotor apparatus damage. And vice versa, other causes of immobility that derive from general organism condition and others are found only rarely in individual cases.

It was found in other pigs that locomotor apparatus diseases (96.4%) rather than general or others conditions (3.6%) were the more frequent causes of emergency slaughters due to immobility, too. This difference was found to be statistically significant ( $P < 0.01$ ). From among the individual causes of immobility of other pigs, injuries or damage to the locomotor apparatus in the form of pareses of hind limbs, pelvic injuries and limb injuries are to be found almost exclusively. Other causes of emergen-

Table 2. Causes of emergency slaughters of pigs due to immobility reasons in the period of 1997 through 2002

	Sows		Pigs	
	No.	%	No.	%
Pelvic injuries	58	28.9	13	23.2
Spinal contusion injuries and limb injuries	5	2.5	2	3.6
Hind limb paresis	73	36.2	27	48.1
Limb injuries	36	17.9	9	16.1
Joint and claw inflammations	9	4.5	3	5.4
Total	181	90.0 <sup>c</sup>	54	96.4 <sup>d</sup>
Cachexia and the GIT disorders	1	0.5	0	0
Ataxia	6	3.0	0	0.0
Tetany	0	0.0	0	0.0
Circulation disorders	4	2.0	1	1.8
Post-delivery complications	6	3.0	0	0.0
Selection	1	0.5	0	0.0
Other	2	1.0	1	1.8
Total	20	10.0 <sup>c</sup>	2	3.6 <sup>d</sup>

Explanatory notes:

<sup>c</sup>the difference between the number of locomotor apparatus diseases and the number of general and other diseases is statistically significant ( $P < 0.01$ ) in sows

<sup>d</sup>the difference between the number of locomotor apparatus diseases and the number of general and other diseases

cy slaughters due to immobility were not recorded or they occurred only very seldom. The presented results show that the numbers of emergency slaughtered other pigs due to immobility reasons are very low and among them, the sheer majority of causes of emergency slaughters were locomotor apparatus diseases as opposed to other causes.

## DISCUSSION

The results relating to the causes of emergency slaughters of pigs due to immobility reasons are compatible with the results of projects that deal with the veterinary carcass inspections of slaughtered pigs and cattle findings (Kozak et al., 2003; Vecerek et al., 2003a) and the assessment of their edibility (Kozak et al., 2002). Findings in the organs of slaughtered pigs and cattle made during veterinary inspections at slaughterhouse facilities in the Czech Republic showed that the highest fre-

quency of findings is in the lungs (Vecerek et al., 2003b, 2004) and confirmed thus the conclusions that Grest et al. (1997), Schuh et al. (2000), and Kofer et al. (2001) made. In connection with emergency slaughters of pigs in relation to the incidence of insufficient bleeding of pigs, Szazados (1992) pointed to the findings of lung diseases manifestations. In relation to the emergency slaughters, Vecerek et al. (2003c) pointed out that in cattle, locomotor apparatus diseases represent one of the most frequent reasons for emergency slaughters. They found that the proportion was 58.27% in bulls, 35.30% in cows and 43.07% in heifers. The results of our project show that in sows, this proportion is also quite high (31.3%), nevertheless, in other pigs, the proportion does not reach such high levels, remaining at mere 9.7%. These results imply that there is a difference in the incidence of emergency slaughters due to immobility between sows and other pigs. The purpose of the breeding, the length of breeding, the technology of breeding and animal handling thus represent

a greater burden for the locomotor apparatuses of sows than those of other pigs.

While working on our project, we found by comparing the different causes of emergency slaughters due to immobility in sows that the most frequent causes are locomotor apparatus diseases deriving from injuries or pareses. Other causes are rare. Sows are kept to produce piglets. The incidence of general diseases is thus related to the longer period of animal keeping and the cyclic changes of metabolism and internal environment that manifest themselves in post-delivery complications, circulation disorders, GIT disorders and metabolism disorders and sometimes related to selection or breeding technology reasons. Due to this, one might expect that general conditions should be a frequent cause of immobility while locomotor apparatus diseases might be expected to be a less frequent cause of immobility of sows related to emergency slaughters. Nevertheless, our results did not confirm these hypotheses and, on the contrary, have confirmed that the locomotor apparatus disease is a very frequent cause of immobility, as slaughterhouse meat inspections during emergency slaughters of sows document. These results prove that, in sows, immobility resulting in emergency slaughters is related namely to unsuitable handling that causes injuries and pareses of the locomotor apparatus rather than insufficient care leading to general and other diseases of sows.

When comparing the causes of emergency slaughters due to immobility in other pigs, we found that locomotor apparatus diseases deriving from injuries and pareses were among the more frequent causes while other causes were quite rare. The purpose of breeding other pigs is their production for slaughter. In these pigs, the period of breeding is shorter and also such significant changes of metabolism and the internal environment during the fattening period do not occur, as is the case during sow keeping. Because of this, one can expect that the incidence of mobility disorders leading to emergency slaughters of these pigs due to general conditions should not be too frequent and that the reason of immobility of these pigs should be locomotor apparatus diseases. Our results confirmed these hypotheses and confirmed that at slaughterhouse meat inspection during emergency slaughters of other pigs, locomotor apparatus disease is almost the exclusive cause of immobility. These results prove that, in other pigs, immobility leading to emergency slaughters is related to unsuitable handling causing injuries and pareses of the locomotor apparatus.

To reduce the numbers of emergency slaughters due to immobility in sows and other pigs it is necessary to take such measures which will above all limit damage to the locomotor apparatus at farms and during transport of sows and other pigs.

Our results prove the importance of assessing data acquired at slaughterhouse meat inspections as emphasized by Kofer et al. (2001) and Berns et al. (1997).

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