

# Birth interval or duration of parturition: which is relevant to risk of stillbirth and intervention?

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Year	Number of sections	Total born	Stillborn
1978	51	10.2	0.2
1979	49	10.7	0.2
1980	99	11.3	0.2
1981	64	9.8	0.6
1982	72	10.4	0.3
1983	107	10.4	0.2
1984	106	11.0	0.3
1985	61	10.2	0.1
1986	96	10.9	0.1
1987	80	10.3	0.2
1988	71	11.4	0.2
Overall	856	10.6 ± 3.2	0.2 ± 0.8

## Cesarean section in the sow: A retrospective analysis of litter size and stillbirth rate

Robert M. Friendship, Kenneth R. Metzger, Nancy P. Robinson, Gordon S. Doig

**Of mature piglets, 98 % are potentially viable at birth.**

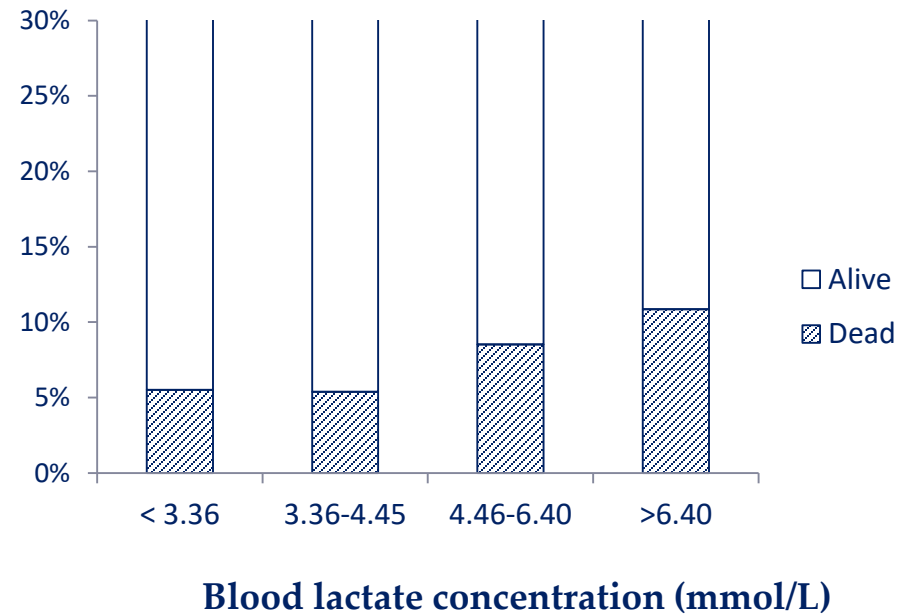
**Friendship et al. (1990)**

# Postnatal implications of asphyxia...

**The Course of Parturition Affects Piglet Condition at Birth and Survival and Growth through the Nursery Phase.**

*Langendijk P, Fleuren M, van Hees H, van Kempen T*

Animals 2018, 8(5)



## Postnatal implications of asphyxia

	Blood lactate concentration (mmol/L)				P value
	< 3.36	3.36-4.45	4.46-6.40	>6.40	
n	127	127	129	133	
Birth weight (kg)	1.53 <sup>a</sup> ± 0.03	1.46 <sup>ab</sup> ± 0.03	1.39 <sup>b</sup> ± 0.03	1.25 <sup>c</sup> ± 0.03	<0.01
Birth to first suckling (min)	34.3 ± 3.2	29.7 ± 3.2	38.8 ± 3.2	39.9 ± 3.3	0.10
Colostrum intake (g) <sup>1</sup>	463 <sup>a</sup> ± 13	441 <sup>ab</sup> ± 13	416 <sup>bc</sup> ± 13	377 <sup>c</sup> ± 13	<0.01
ADG to weaning (g/day)	259 ± 4 <sup>a</sup>	259 ± 4 <sup>a</sup>	256 ± 5 <sup>a</sup>	245 ± 5 <sup>b</sup>	0.03
Weaning weight (kg)	8.47 <sup>a</sup> ± 0.13	8.41 <sup>a</sup> ± 0.13	8.13 <sup>ab</sup> ± 0.14	7.93 <sup>b</sup> ± 0.14	0.02
ADG after weaning (g/day)	721 <sup>b</sup> ± 15	710 <sup>b</sup> ± 14	717 <sup>b</sup> ± 14	664 <sup>a</sup> ± 14	0.02

# Current data

- Multiparous LWxLR (n=256), Hypor, Hendrix Genetics
- Spontaneous farrowings, no interventions (2 h / 6 h rule)
- Average stillbirth rate 6.6 %
- Total born  $15.3 \pm 0.5$
- Data based on 3924 piglets, subset (n = 516) also umbilical cord samples

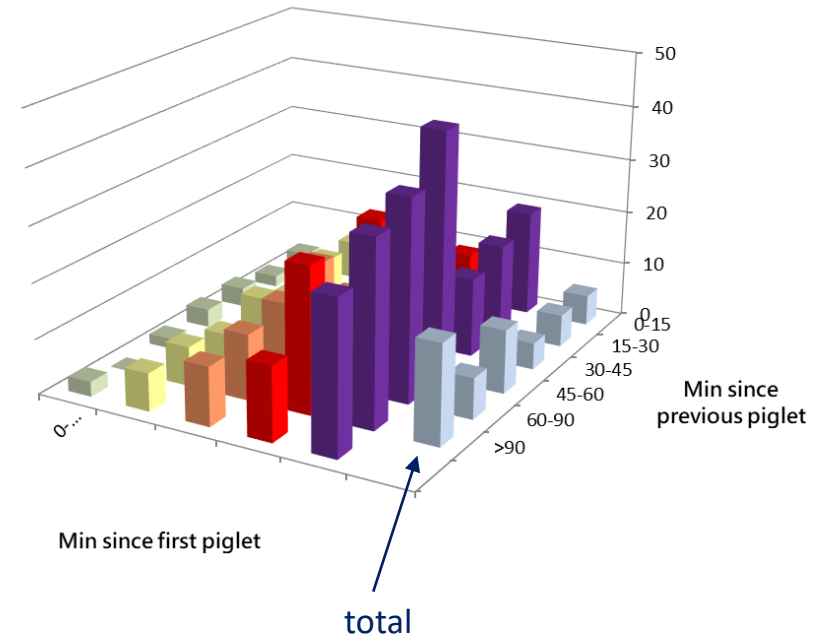
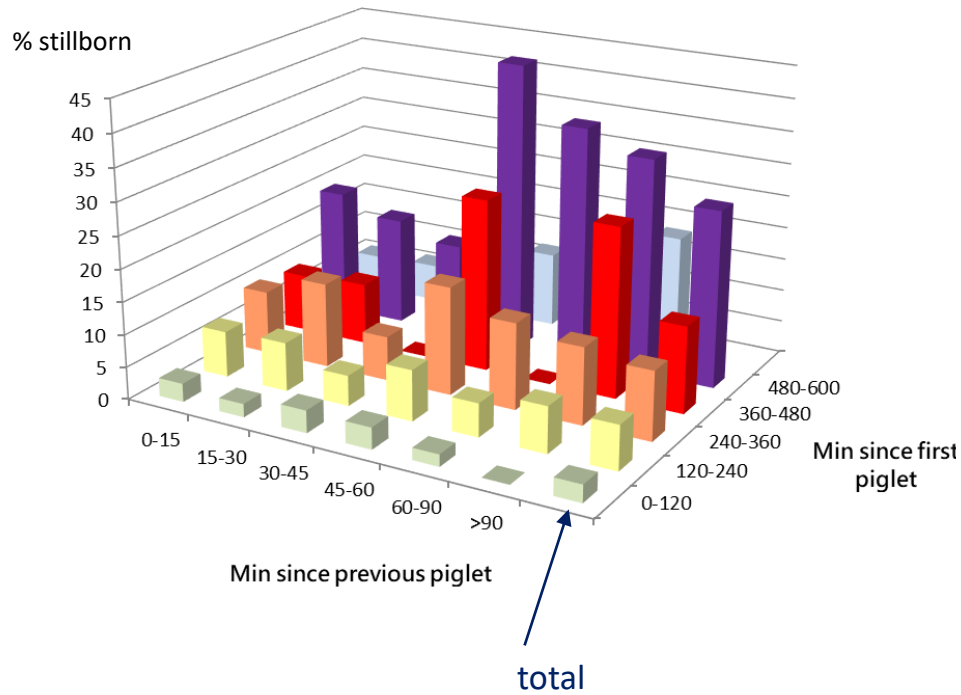
## Effect of birth interval vs total duration of farrowing

Impact of time since previous piglet on stillbirth				
Time	0 to 30 min	30 to 60 min	60-90 min	> 90 min
n	2978	539	162	245
% stillborn	5.6 %	6.8 %	7.4 %	18 %*

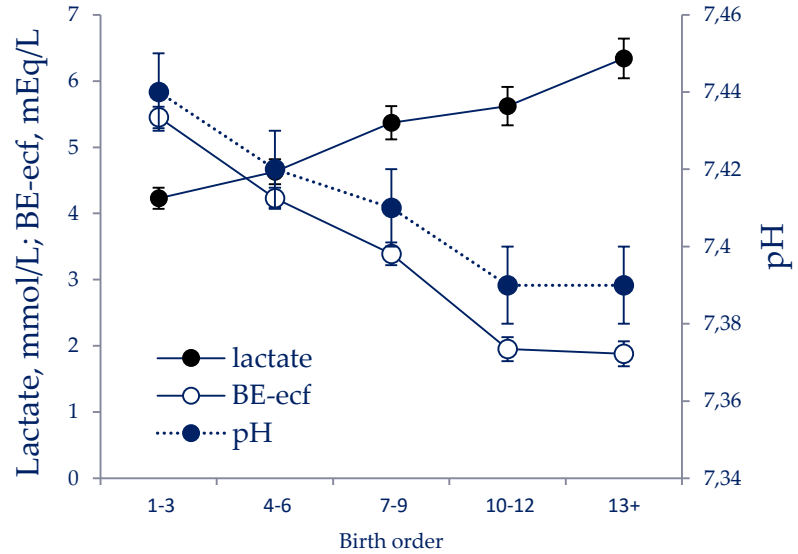
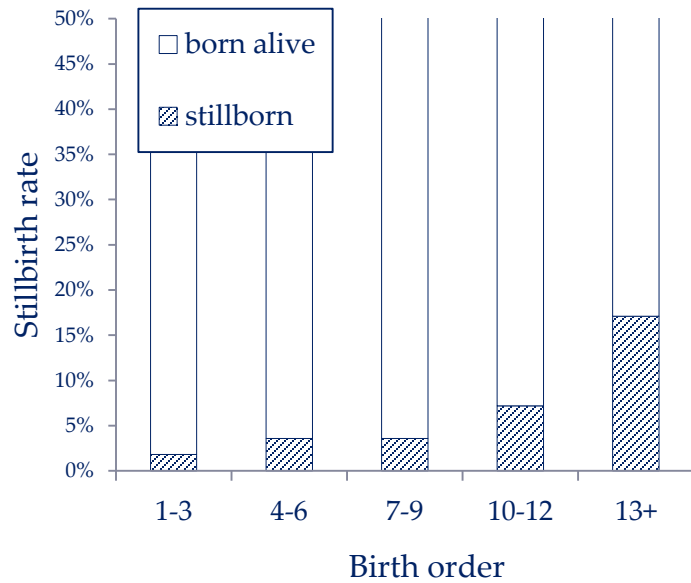
\*different from first value

Impact of total duration of farrowing on stillbirth					
Time	< 2 h	2 to 4 h	4 to 6 h	6 to 8 h	> 8 h
n	1827	1226	535	164	172
% stillborn	2.7 %*	6.9 %*	10.7 %*	13.4 %*	27.3 %*

# Stillbirth % in relation to interval and total time



# Impact of birth order...





## Effect of pre-farrowing concept on neonatal outcome

	CTR	Prototype product	
n	24	28	
Parity	4.7 ± 0.4	4.7 ± 0.4	
BA**	14.1 ± 0.3 <sup>x</sup>	14.7 ± 0.3 <sup>y</sup>	← +0.6 born alive
SB**	1.6 ± 0.3	1.0 ± 0.3	
Colostrum intake, g/24 h**	422 ± 14 <sup>x</sup>	447 ± 13 <sup>b,y</sup>	
% piglets with CI < 250 g ( <b>P &lt; 0.05</b> )	13.9 %	7.1 %	
Piglets at start	14.2 ± 2.7	14.3 ± 3.3	
Piglets surviving**	13.2 ± 0.2	13.6 ± 0.2	
Gain to d7	195 ± 10	203 ± 7	
Postnatal mort for piglet 10+	11.4 % <sup>x</sup>	5.5 % <sup>y</sup>	← +0.4 survived

\*\*corrected for TB (15.7 piglets average); <sup>a,b</sup>different superscripts P < 0.05, <sup>x,y</sup>P < 0.10

# Summary

- **Most perinatal mortalities (~ 75%) are potentially viable piglets**
- **Cumulative time elapsed since onset of farrowing has more impact than interval between piglets**
- **In this population, interventions would be useful after 4h of parturition and 45-60 min since previous piglet**