


NEONATUS – Warsaw, 2019

PULMONARY ULTRASONOGRAPHY OF VERY LOW BIRTH WEIGHT INFANTS AND ITS SAFETY

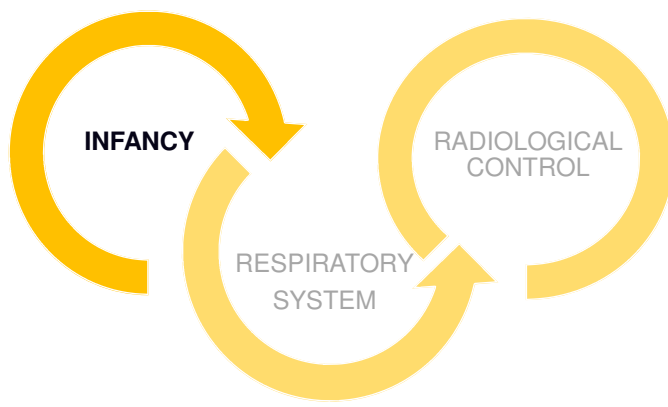


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STUDENT RESEARCH GROUP, CHAIR OF PEDIATRICS, JAGIELLONIAN UNIVERSITY,
COLLEGIUM MEDICUM, CRACOW

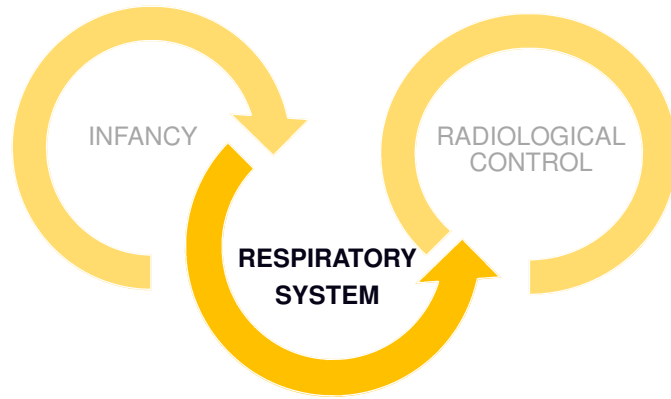
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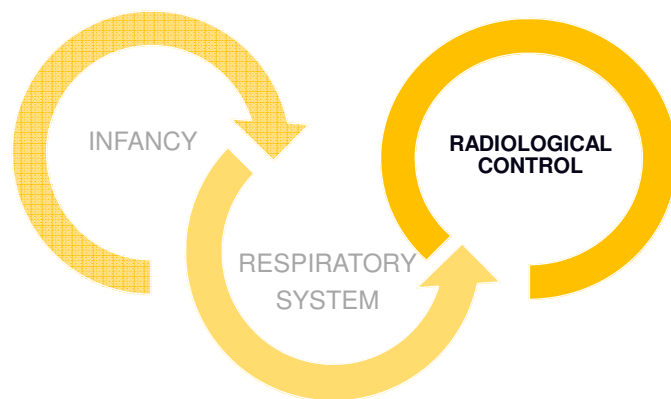


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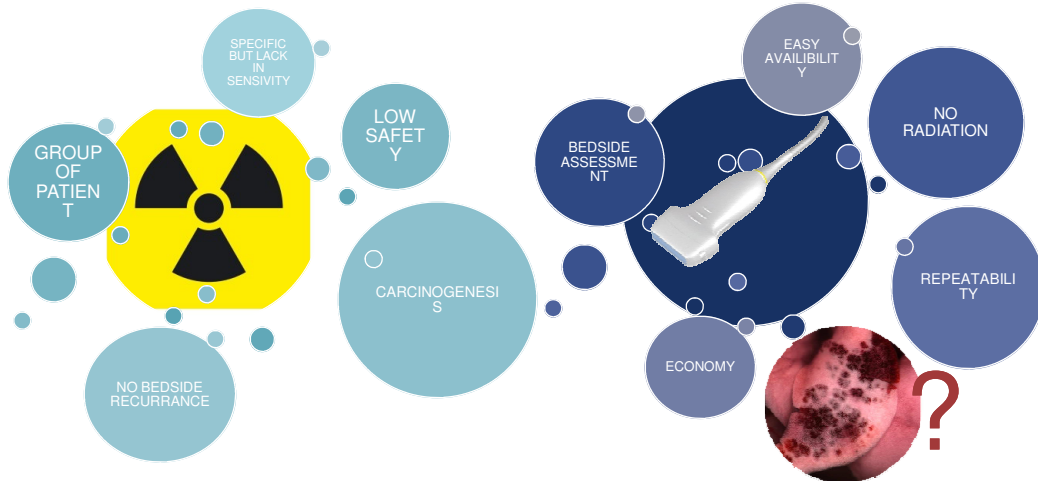


Photo 3: Miller DL, Dou C, Raghavendran K. The Dependence of thresholds for Pulmonary Capillary Hemorrhage on Diagnostic Ultrasound Frequency. *Ultrasound in medicine & biology*. 2015;41(6):1640-1650



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RETROSPECTIVE STUDY - AIM

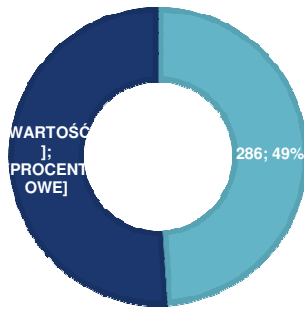
- Neonatal Intensive Care Unit of the Department of Pediatrics, Children's Hospital, Jagiellonian University, a third level neonatal centre in Cracow, Poland.
- Lung ultrasound (LUS) has been the leading diagnostic method of children respiratory disorders in the Unit since 2013.
- To evaluate the safety of LUS as diagnostic method in very low birth weight infants in NICU by finding the potential relationship between lung ultrasound and pulmonary haemorrhage.



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RETROSPECTIVE STUDY – MATERIALS AND METHODS

■ LUS (Lung ultrasonography) ■ CXR (Chest X-ray)



Graph 1. Number of patients included to the study.

CRITERIA OF INCLUSION

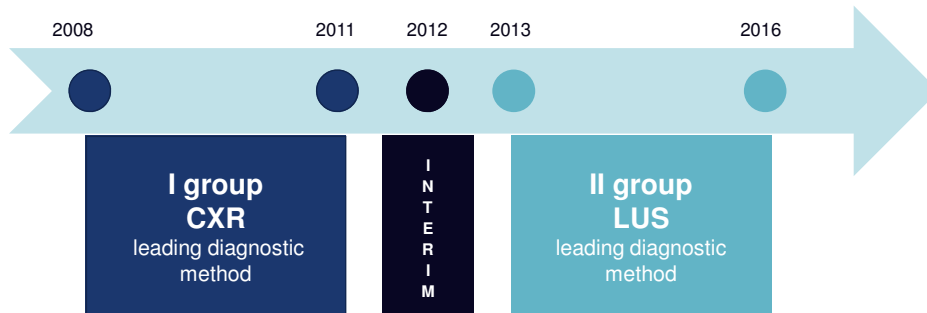
- respiratory failure
- suspicion of respiratory distress syndrome
- air leak syndromes
- congenital pneumonia
- lungs and diaphragm malformations
- confirmation of central venous catheter's position

Table 1. Criteria of inclusion.



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RETROSPECTIVE STUDY – MATERIALS AND METHODS



- PATIENTS - INFANTS <1500g
- CXR – Polymobil Plus
- LUS – Philips HD 11/Philips Envisor – 5-12 MHz



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RETROSPECTIVE STUDY – RESULTS

variables	group 2008-2011 n = 297	group 2013-2016 n = 286	p value
Birth weight, g, mean (IQR)	1000 (737,5-1300)	1115 (850-1300)	0,0027 ¹
Gender, male n (%)	144 (48,3%)	154 (53,8%)	0,21 ²
GA, wk median (IQR)	28 (26-30)	29 (26-31)	0,0003 ¹
SA 5, mediana (IQR)	6 (5-7)	7 (5-8)	0,0027 ¹
IVH III/IV, n (%)	77 (25,9%)	27 (9,4%)	<0,001 ²
BPD, n (%)	68 (22,9%)	54 (18,9%)	0,263 ²
LOH, median (IQR)	55 (31-89)	47 (32-72)	0,063 ¹
Death before discharge, n (%)	27 (9,1%)	12 (4,2%)	0,021 ²

Table 2. Demographic and clinical characteristics of the patients.



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RETROSPECTIVE STUDY – RESULTS

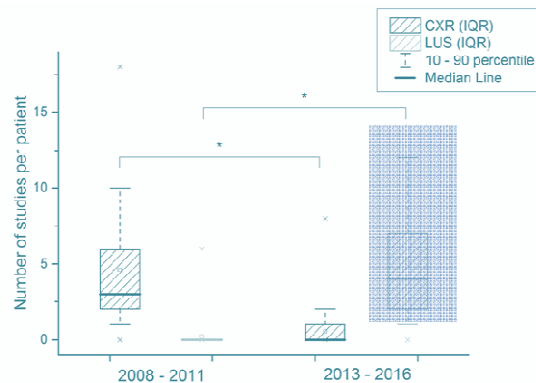


Figure 1. Number of CXR and LUS studies per patients in group 1 (2008-2011) and group 2 (2013-2016).



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RETROSPECTIVE STUDY – RESULTS

	group 2008-2011 n = 297	group 2013-2016 n = 286	p value
Pulmonary hemorrhage, n (%)	1 (0,3%)	0 (0,0%)	1,0
RDS, n (%)	238 (80,1%)	220 (76,9%)	0,365
Surfactant, n (%)	109 (36,7%)	147 (51,4%)	<0,001 ²
Mechanical ventilation, n (%)	232 (78,1%)	185 (64,7%)	0,0003 ²
FFP transfusion, n (%)	76 (25,6%)	68 (23,8%)	0,632 ²
Thrombocytopenia, n (%)	13 (4,4%)	11 (3,8%)	0,836 ²
HsPDA, n (%)	123 (41,4%)	92 (32,2%)	0,025 ²

Table 3. Analysis of risk factor for pulmonary haemorrhage



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RETROSPECTIVE STUDY – RESULTS

- The safety of LUS as a diagnostic tool of pulmonary disorders in VLWB infants is supported by the fact of no episodes of PCH in this group of patients.
- There is no correlation between risk factors and occurrence of pulmonary capillary haemorrhage.



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THANK YOU FOR YOUR ATTENTION

