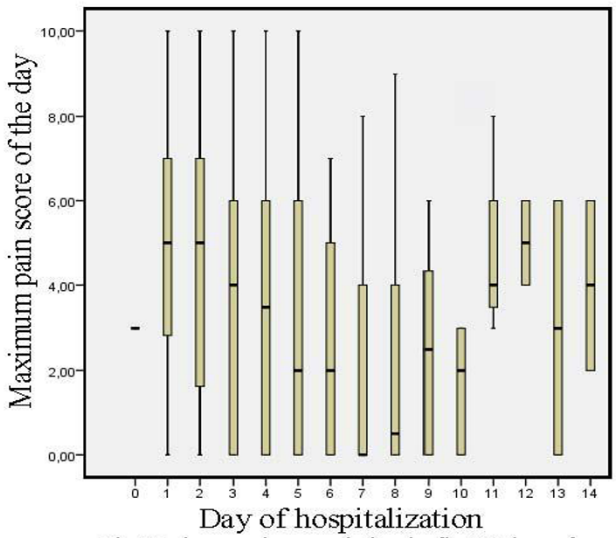

Fig. Maximum pain score during the first 14 days of hospitalization. Median, interquartiles and extreme values are shown

[Maximum pain score during 14 days of admission]

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CEREBRAL HAEMODYNAMICS AND CARBON DIOXIDE REACTIVITY AT CHILDREN DURING SEVERE NOSOCOMIAL PNEUMONIA

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Background: Most patients with severe nosocomial pneumonia (SNP) develop potentially irreversible cerebral dysfunctions. We hypothesized that cerebral haemodynamics and carbon dioxide reactivity would be impaired in children with severe nosocomial pneumonia and pathological electroencephalogram patterns.

Methods: After approval of the institutional ethics committee, 18 mechanically ventilated patients with severe nosocomial pneumonia and pathological electroencephalogram patterns underwent measurements of cerebral blood flow and jugular venous oxygen saturation before and after reduction of the arterial carbon dioxide partial pressure by 0.84 ± 0.72 kPa by perventilation. The cerebral capillary closing pressure was determined from transcranial Doppler measurements of the arterial blood flow of the middle cerebral artery and the arterial pressure curve. A *t* test for matched pairs was used for statistical analysis ($P < 0.05$).

Results: During stable mean arterial pressure and cardiac index, reduction of the arterial carbon dioxide partial pressure led to a significant increase of the capillary closing pressure from 24,2 ± 10,2 mmHg to 37,1 ± 13,2 mmHg ($P < 0.001$), with a consecutive decrease of blood flow velocity in the middle cerebral artery of 23.3 ± 2.2%/kPa ($P < 0.001$), of cerebral blood flow from 60,2 ± 29,1 ml/100 g/min to 38,1 ± 16,2 ml/100 g/min ($P < 0.001$) and of jugular venous oxygen saturation from 74,2 ± 8,2% to 64,1 ± 10,0% ($P < 0.01$).

Conclusion: In contrast to other experimental and clinical data, we observed no pathological.

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STETHOSOPES: POTENTIAL RESERVOIRS FOR THE SPREAD OF NOSCOCOMIAL INFECTIONS

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Background: Infants in neonatal intensive care units (NICUs) are at increased risk of nosocomial infection (NI).

Aims: To determine stethoscope *Staphylococcus* (*S.*) contamination rates & anti-sepsis practices.

Methods: Stethoscopes of 12 medical students, 12 NICU physicians and at 12 incubator/cotsides were cultured for *S.* species (viruses, fungi and other bacteria not assessed). Positive cultures were reported as light, moderate or heavy growth. Students and physicians were surveyed regarding frequency of stethoscope anti-sepsis and charts were reviewed for evidence of NIs.

Results: Overall, 22/36 stethoscopes grew *S.* species. No meticilin resistant *S. Aureus* was isolated and 11/22 had a light growth of coagulase negative *Staphylococci* (CONS). There was a moderate/heavy growth CONS from; 3/12 student, 4/12 physician, 2/12 NICU stethoscopes. *S. Aureus* was isolated from 1 student stethoscope (heavy growth), 1 physician stethoscope (moderate

growth) and 0 NICU stethoscopes. 11/12 medical students completed the survey; 1 cleaned the stethoscope often, 8 infrequently and 2 never: surveys were completed by 12/12 physicians; 6 cleaned the stethoscope frequently, 4 often, and 2 infrequently. Self-reported anti-sepsis frequency did not correlate with bacterial growth. NICU bedside stethoscopes were the least contaminated. There were no matching positive blood cultures; in 1 infant CONS was isolated from the stethoscope and from a long-line tip.

Conclusions: Stethoscopes represent potential reservoirs of NIs. Contamination of personal stethoscopes with *S.* species was relatively common; antisepsis should be performed routinely. Individual incubator / cotside stethoscopes were least contaminated and should be used for patients at high risk from NI.

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HOW CLEAN IS CLEAN? EFFECTIVENESS OF DISINFECTION OF THERMOMETERS ON A NEONATAL INTENSIVE CARE UNIT

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Background/aims: Nosocomial infections are responsible for major morbidity in neonates admitted to the Neonatal Intensive Care Unit (NICU). Hygienic measures reduce nosocomal infections. We assessed the effectiveness of the disinfection procedure of the (rectal) thermometer.

Method: This study was performed at the NICU of the University Medical Center Groningen (UMCG) with a capacity of 24 neonates.

Thermometers of admitted neonates were cultured two times. First after the usual disinfection procedure, consisting of disinfecting the thermometer with an (unsterile) gauze with alcohol 70%. Secondly after a novel disinfection procedure, consisting of immersion of thermometers in alcohol 70% for 15 minutes. Thermometers were shaken in brain-heart infusion medium. Inocculated medium was incubated up to 48 hours at 37°C and was subsequently plated out on blood agar and on McConkey plates. Bacterial isolates were indentified based on gross colony morphology, microscopic examination (Gram straining), and biochemical tests.

Results: Initially, 16 of 21 thermometers were contaminated with micro-organisms. In the second phase, 75% of the thermometers where contaminated if the immersion procedure was not performed, compared to 30% after immersion in alcohol 70% ($p < 0.05$).

	Culture negative	Culture positive (number of Gram-negative micro-organisms)	Total number (n)
No alcohol immersion	2	7 (5)	9
Alcohol immersion	7	3 (0)*	10

*[Effectiveness of disinfection of thermometers]*Immersion in alcohol significantly reduced Gram-negative micro-organism (0 vs 56%, immersion vs no immersion,resp.;$p < 0.05$)

Conclusion: Immersion of thermometers for 15 minutes in alcohol 70%, results in a significant reduction of the number of (Gram-negative) micro-organisms on thermometers.

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SERVICE EVALUATION OF SERUM PROCALCITONIN IN MANAGEMENT OF NEONATAL SEPSIS

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Background: Infection is a major concern in neonatal population. After reviewing available literature, procalcitonin was introduced in management of neonatal sepsis with other markers of infection, already in use in our neonatal unit.

Aim: This service evaluation aims to review the role of procalcitonin in early detection of sepsis and compare it with existing tools.

Method: Neonatal sepsis management guideline was reviewed. A new algorithm was introduced. Serum procalcitonin level was checked with regular inflammatory markers in all episodes of suspected sepsis. An enzyme-linked fluorescent assay determined serum procalcitonin level. Cut off value for CRP is 7.5 ml/Land for serum procalcitonin