Introduction:
Nosocomial sinusitis (NS) is a complication of critically ill patients which develops 48-72 h after admission and is mostly linked but not limited to such invasive procedures as nasotracheal intubation and nasogastric tube placement. NS is often overlooked as a source of pyrexia of unknown origin, meningeal manifestations, sepsis and ventilator associated pneumonia in ICU patients. CT scanning and sinus puncture are used to confirm the inflammatory process and identify the pathogen behind it.

Methods:
A retrospective case study of 6,479 ICU patients for a period of 2012-2016 was performed. We have analysed data from the CT scans of paranasal sinuses and bacteriological findings of samples obtained from sinus puncture.

Results:
644 (9.9%) patients were suspected of NS on the 5-7th day of stay in the ICU. The CT scan confirmed pathological changes in 464 patients (7.1%). Hemisinusitis was detected in 422 patients (90.9%) and pansinusitis in 41 patients (8.8%). There was also an isolated case of maxillary sinusitis in 1 patient (0.2%). The pathogenic culture was identified only in 297 (64%) samples, 34.6% of which revealed isolated bacteria and 65.4% a polymicrobial association. Gram positive bacteria were detected in 16.1% of cases and Gram negative in 49.5%. Most cases revealed multiple antibiotic resistance.

Conclusion:
1. NS has proved to be largely caused by Gram negative bacteria and polymicrobial associations. The use of broad spectrum antibiotics in ICU may justify the presence of sterile cultures.
2. Early identification of risk patients in ICU as well as the use of screening CT scan may benefit timely diagnosis and adequate treatment of patients.
3. Preventive considerations include: patient’s bed head elevation, the use of oral gastric tube in sedated and coma patients on ventilation, nasotracheal intubation only if indicated, removal of nasogastric tube at night, proper hygiene.