

### Comparison of the Efficacy of a Bag-Valve-Guedel Adaptor to the Commonly Used Facemask in Healthy Bearded Volunteers

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**Introduction:** Emergency field ventilation is usually performed using bag-valve mask devices, which is difficult to handle for a long period, particularly with lack of skilled personnel. We have developed a Bag-Valve-Guedel Adaptor (BVGA), allowing to ventilate without a facemask, with no need to perform chin lift or jaw thrust maneuvers, and using one hand only.

**Objective:** To test the efficacy and safety of the BVGA in healthy bearded young volunteers.

**Methods:** This study was a prospective, randomized, self-controlled clinical study, in 25 healthy bearded males. They were breathing through a facemask for 3 minutes room air, followed by 3 minutes 100% oxygen. The mask was then taken off and after a 5-minute washout period in room air, the procedure was repeated with the BVGA. All the procedures were carried out while the subjects were awake and spontaneously breathing. Throughout the study, physiological and respiratory parameters were continuously monitored. At the end of the study, the investigator filled a questionnaire regarding the handling of the BVGA.

**Results:** Both TV and EtCO<sub>2</sub> were significantly higher using the BVGA as compared to the mask, both during inspiration of air or during inspiration of 100% oxygen. Finally, the on-site investigator reported that the BVGA was more comfortable and resulted in less fatigue compared to the mask in all cases.

**Conclusions:** The results of this study show that BVGA is more effective and comfortable compared to the facemask. The physiological parameters were better when using the BVGA rather than with the facemask. Future study is planned in anesthetized volunteers in ambulatory setting.

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### Correlation between Respiratory Signs and Symptoms and Infiltration in Chest Radiography

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**Introduction:** Community-acquired pneumonia is a common disease in about 1% of the population with significant clinical, epidemiological and economic consequences. Only 5% of patients are diagnosed with bacterial pneumonia requiring antibiotic treatment. The diagnosis of pneumonia is based on a complaint of symptoms of lower respiratory infection (such as fever, cough, shortness of breath, chest pain) and the presence of appropriate physical findings (wheezing, increased fremitus, extended expirium). The classical findings in physical examination appear in less than 25% of patients with pneumonia. In most cases, chest x-rays are unnecessary to diagnose pneumonia unless the diagnosis is unclear. In practice, patients are often sent by the primary physician for chest imaging without need. This causes many unnecessary chest X rays and unnecessary exposure to radiation.

**Objective:** A. An examination of the proportion of chest x-ray findings among patients who were sent for chest x-ray imaging on suspicion of pneumonia.

B. Examination of symptoms and findings in the physical examination predicting the presence of filtrate in chest imaging.

**Methods:** Chest x-ray findings of 500 patients aged 18-50 were examined and compared with the findings of history and physical examination. All data were taken from the computerized record of the Imaging Institute (RIS).

**Results:** Of the 500 chest x-rays reviewed, 10% demonstrated infiltration. Auscultations findings had the highest predictive value of all physical examination findings and were 29%. A combination of fever and auscultation finding increased the positive predictive value to 36%. No symptom or combination of symptoms could predict pneumonia satisfactorily.

**Discussion & Conclusions:** The findings indicate the difficulty of diagnosing pneumonia according to complaints and physical examination only. Auscultation finding reduces the need for chest imaging. The fact that the predictive value of symptoms to pneumonia is so low raises a question about the clinical directive not to perform a chest x-ray to diagnose pulmonary infection. Additional criteria are needed to diagnose pneumonia such as CRP.

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