

VL and VT without modifying the A. The sodium bicarbonate did not modify the conduction V while the QRS prolongation was corrected. The clomipramine acts as a class I antiarrhythmic drug on the inward sodium current during the phase 0 of the action potential, but a modulation of the junctional resistivity can not be ruled out.

**Key words:** anti-depressants; tricyclic; bicarbonate; clomipramine; intoxication, QRS; velocities, conduction; ventricles

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### National Prospective Survey on Emergency Endotracheal Intubations in French Emergency Departments: Preliminary Results

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In United States, data on emergency endotracheal intubations in emergency departments are listed in a national register (National Emergency Airway Registry Study or NEAR). These data are unknown in French emergency departments.

**Objective:** To characterize emergency department airway management in France, including frequency, practice, and success and complication rates.

**Methods:** We conducted a prospective, observational one-month study in emergency departments to assess the endotracheal intubations consecutively attempted in emergency rooms.

**Results:** A total of 51 French emergency departments (17 teaching hospitals, 29 non-teaching hospitals, and 5 private hospitals) recorded their data during this preliminary study. A total of 274 intubations were registered over this period: average of  $4.8 \pm 5.1$  intubations/month/emergency department (range: 0–24). In seven emergency departments, no patients were intubated during an eight-month periods. The demography of the patients and the main problems for which intubations were attempted included: men, 62.6%;  $55 \pm 21$  years, range 2–94 years who were: (1) toxic, 21%; (2) had acute cerebrovascular diseases such as stroke and epilepsy, 17%; (3) trauma, 15%; (4) cardio-vascular, 11%; and/or (5) respiratory failure, 11%. The airway management indications were dominated by: (1) decreased mental status or unconsciousness, 56%; (2) respiratory failure, 34%; (3) hemodynamic distress, 14%; and/or (4) cardiac arrest, 10%. Oral endotracheal intubations and nasal endotracheal intubations were the first method attempted in 81% and 19% of intubations respectively. Intubations of adults and children were managed by emergency practitioners in 66.4% of cases, anesthesia or intensive care physicians in 31.1%, and anesthesia nurses in 1%. The average number of attempts was  $1.2 \pm 0.9$ /operator (range: 1–10), most being realized from first glottic exposure (82%). It was necessary to call in a second operator 25

times and this second operator was a member of the emergency team 11 of these times. The endotracheal intubation was undertaken with the administration of an intravenous anesthetic drug 198 times (72.3%); Rapid sequence intubation and intubation with sedation only, were performed respectively in 24% and 35% of intubations. The immediate complications directly attributable to the intubation were detected in 17%, the most frequent being: (1) low blood pressure, 44%; (2) arterial desaturation, 19.5%; (3) vomiting, 14.6%; (4) selective intubation, 14.6%; (5) esophageal intubation, 12.2%; (6) epistaxis, 73%; and (7) laryngospasm, 5%. The intubations were impossible one time (a tracheotomy was necessary).

**Conclusion:** This study is the first survey on intubation in the French emergency departments. Most intubations were not done using rapid sequence intubation. However, the emergency physicians' success rate was high. The endotracheal intubations in Emergency Department are managed mainly by emergency practitioners who have preliminary training in their courses of study.

**Key words:** anaesthetics; emergency; emergency departments; endotracheal; France; indications; intubation; rapid sequence; sedation

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### Emergency Endotracheal Intubations: Procedures, Medications, and "Difficult Airway Cart" Available in Emergency Departments in France

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**Introduction:** Efficient and rapid airway management must to be learned and mastered by emergency physicians. Airway management is a key component of the care of the critically ill or injured patients. This work purposes to identify the dispositions for emergency endotracheal intubation in French emergency departments.

**Method:** A questionnaire was sent to the heads of emergency departments in France. The data collected ascertained the emergency department typology, the intubation procedures, the medicaments used to intubate, and options used for difficult airway management.

**Results:** 92 French emergency departments (20 teaching hospitals, 67 non-teaching hospitals, and 5 private hospitals), receiving more than 2.5 millions of patients per year, recorded their data. An anaesthesiologist or intensive-care practitioners were present 24 hours in 85.9% of hospitals. The average number of endotracheal intubations was estimated at  $169.4 \pm 79.4$ /emergency department/year (28 emergency departments have not provided data for this study). A systematic collection of the number of endotracheal intubations performed and the conditions under which the attempts were made was done in only 9.9% of the emergency departments. A written procedure on airway management existed in 18.7% of the emergency

departments (n = 17). Most often, a nurse undertook daily (71%) or weekly (14%) systematic verification of endotracheal intubation equipments in 87 emergency departments (94.6%). The necessary drugs for the performance of endotracheal intubation and that were present in emergency rooms were: (1) midazolam, 100%; (2) diazepam, 98.9%; (3) thiopental, 83.3%; (4) propofol, 83.3%; (5) fentanyl, 81.1%; (6) succinylcholine, 77.8%; (7) etomidate, 77.8%; (8) ketamine, 57.8%; vecuronium, 55.6%; (9) rocuronium, 31.1%; and (10) other non-depolarizing agents, 26.7%. In case of difficult airway management, the emergency practitioners found these other supplies available in emergency rooms: (1) kit for cricothyroidotomy, 69.7%; (2) catheter for percutaneous transtracheal ventilation; (3) kit for retrograde intubation, 21.3%; (4) intubating laryngeal mask airway, 21.3%; (5) combitube, 14.6%; (6) fibroscope, 14.6%; and (7) fast-track, 12.4%.

**Conclusion:** Anaesthetic agents are present in most of emergency departments. These emergency departments are less equipped with equipment and supplies for difficult airway techniques. The presence of airway management protocols or guidelines are rare. However, in France, it is necessary to improve the endotracheal intubation training of emergency physicians. In this training, the practitioners also must learn rapid sequence intubation (RSI), which is a standard emergency department procedure, and new airway devices such as the intubating laryngeal mask airway and a Bullard laryngoscope bade.

**Key words:** airway management; anesthetic agents; cricothyrotomy; drugs; endotracheal intubation; equipment; emergency departments; rapid sequence intubation; supplies; ventilation

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### Consumption and Cost of Prescribed Medicines in Eight Emergency Departments in France and in Switzerland

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**Introduction:** Monitoring of consumption and costs of prescribed medicines in emergency department (budgetary monitoring) are often unknown by the emergency teams. This work analyzes these data in different emergency departments.

**Methods:** For each emergency department, the annual (1999) medicine expenses have been classified according to two modes: (1) quantitative by decreasing order the 20 first per os administered products on the one hand, and the first 20 intravenously or intramuscularly administered products; (2) by cost by decreasing the orders for the 20 most expensive products. For the global quantitative analysis, the products have been classified according to their frequency of quotation in each 20 first administered products list.

**Results:** Eight emergency departments were enrolled in the

study (seven in France and one in Switzerland). Characteristics of these emergency departments were: five teaching departments, two medical and six trauma-medical emergency centers, with a short-term hospitalisation unit in five emergency departments. For this study, the average number of annual admissions was 43,150 ±19,360 / year (400,000 annual admissions entirely). Among the 20 first per os administered products, in all emergency departments, paracetamol (acetaminophen) was the most frequently delivered product (more than 190,000 units distributed /year), and associated paracetamol and propoxyphene constituted 37% of the shares. The other 20 first per os administered products were, in descending order: phloroglucinol, aspirin, alprazolam, amoxicillin, amoxicillin-clavulanate, prednisone, omeprazole, and activated charcoal. Among the 20 first intravenously or intramuscularly administered products, the proparacetamol was the most prescribed (36,000 units of 1 and 2 g by year); the other most current parenteral injectable molecules in descending order were: lidocaïne, amoxicillin-clavulanate, phloroglucinol, ketoprofene, methylprednisolone, morphine, furosemide, omeprazole, metoclopramide, epinephrine, trinitrine, unfractionated heparin, and low molecular weight heparin. Among the most expensive molecules, some did not belong to quantitatively prescribed products: antiretroviral drugs, sandostatine, some antidotes (flumazenil, N-acetyl cysteine), dobutamine, rt-PA; others already had been noted and included: amoxicillin-clavulanate, proparacetamol, omeprazole, activated charcoal, phloroglucinol, lidocaïne, and ketoprofene.

**Conclusion:** This multicenter evaluation is an interesting economic approach among French-speaking emergency departments. In each emergency department, this approach provides the data to create a budget monitoring of the consumption and costs of prescribed medications.

**Key words:** consumption; costs; drugs; emergency departments, France

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### Abuse of Poppers: Four Cases of Methemoglobinemia Observed in an Emergency Room

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**Introduction:** Methemoglobinemia is an exceptional complaint in emergency rooms. Its origin is especially toxic. Butyl and propyl nitrites "poppers" are being used increasingly as aphrodisiacs. We describe four cases of methemoglobinemia following ingestion or inhalation of nitrite poppers.

**Case 1:** A 36 year-old-man was admitted for cyanosis, confusion, agitation, and loss of consciousness following the ingestion of poppers. The blood pressure was 130/79 mmHg, the pulse rate was 103 beats/min., and pulse oximeter (SpO<sub>2</sub>) read 90% (oxygen administration at 6 l/min). The patient presented with coma, agitation, dark