**IMPROVED SEDATION CAPNOGRAPHY AND ENHANCED PATIENT SAFETY FOR SEDATION ANESTHESIA: THE CASE FOR A UNIVERSAL CAPNOGRAPHY ADAPTER**

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**ABSTRACT**
Current state of monitoring in the USA: there is a widespread practice of improvisation due to lack of appropriate equipment for sedation capnography. It is estimated that in 30% of cases capnography is either absent or deficient. Below are three case reports making the case for a universal capnography adapter to enable capnography off multiple commonly used airway products. Each case demonstrates that the application of a universal capnography adapter meets clinical monitoring standards in situations where specialty airways are not available. A universal capnography adapter advances diagnostic capnography for multiple airway products used for procedural sedation and directly impacts patient safety.

**BACKGROUND**
The American Society of Anesthesiologists has strict safety mandates for sedation capnography.

"During regional anesthesia (with or without sedation) or local anesthesia (with or without sedation), the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs. During moderate or deep sedation, the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs and monitoring for the presence of expired carbon dioxide unless precluded or invalidated by the nature of the patient, procedure, or equipment."  
ASA Mandate 3.2.4

**LEARNING OBJECTIVES**
1. Study the feasibility of a universal capnography adapter to advance diagnostic capnography for procedural sedation.
2. Establish a quick method of enabling capnography off pre-existing airway products.

**CASE 1:**
- **AIRWAY:** Natural airway with non-rebreather face mask for oxygen supplementation.
- **ANESTHESIA:** Total intravenous anesthesia with Propofol infusion.
- **CAPNOGRAPHY:** Universal capnography airway adapter applied to side of tracheal catheter.
- **OUTCOME:** Full compliance with ASA monitoring standards for sedation capnography.

**CURRENT STATE OF AFFAIRS**

**Universal Adapter**

**CASE 2:**
- **AIRWAY:** Natural with nasal cannula for oxygen supplementation and carbon dioxide sampling for capnography.
- **ANESTHESIA:** Local infiltration anesthesia with intravenous sedation.
- **CAPNOGRAPHY:** Universal capnography adapter applied to Guedel airway with transfer of nasal cannula to oropharyngeal airway.
- **OUTCOME:** Adequate oxygenation and high-quality capnography tracing. Full compliance with ASA monitoring standards for sedation capnography.

**CASE 3:**
- **AIRWAY:** Natural airway with protective bite block.
- **ANESTHESIA:** Intravenous sedation.
- **CAPNOGRAPHY:** Nasal capnography tracing degraded; rescue capnography achieved by applying universal adapter to side aperture of bite block.
- **OUTCOME:** Successful capnography off bite block application. Full compliance with ASA monitoring standards for sedation capnography.

**CONCLUSIONS**
A universal capnography adapter is a viable method to enable capnography off multiple commonly used airway products. It represents a significant diagnostic advance superceding the current practice of improvisation for procedural sedation. A universal adapter can rapidly convert multiple airway products to capnography capable products for enhanced patient safety.

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