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| **Non-invasive ventilation implementation guidance in Australian hospitals: a systematic review** |
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| **Introduction/Aim:** Non-invasive ventilation (NIV) is used often outside high acuity settings to manage acute hypercapnic respiratory failure. We aimed to review NIV guidance documents from Australian hospitals, to identify current practice, any variations and generate standardised core implementation recommendations.  **Methods:** A systematic review of Australian hospitals’ NIV guidelines, protocols, procedures and policies for adult inpatients were identified via the PROMPT database and other networks. Data extracted included care settings, NIV initiation, maintenance, weaning, escalation, and processes of care.  **Results:** Of 126,260 documents identified, 22 were included, with 16 Victorian hospitals (72.7%), 13 (59.1%) metropolitan, 7 (31.8%) rural and 2 (9.1 %) regional. Most focused NIV use in general wards (n=11, 50.0%), respiratory wards (n=7, 31.8%), and respiratory care units (n=4, 18.2%). International NIV guidelines were rarely referenced (n=4, 18.1%).  Hypercapnia was infrequently defined (n=11, 50.0%), despite being most common indication for NIV use (n=16, 72.7%). Eight (36.4%) correctly defined hypercapnia as pH <7.35 and pCO2 >45mmHg. Most recommended arterial blood gas prior to NIV initiation (n=17, 77.3%); up-titration and maintenance (n=18, 81.8%) but rarely when weaning (n=1, 4.5%). Few recommended SpO2 aims on NIV, 88-92% (n=8, 36.4%).  Senior (n=10, 45.4%) and junior (n=7, 31.8%) medical staff were the most often defined NIV prescribers, followed by senior nurses (n=6, 27.3%). NIV initiation parameters frequently defined (n=12, 54.5%), however, weaning guidance was less common (n=9, 41%). Clinical monitoring requirements were consistently stated (n=21, 95.4%), however, clinical review criteria (n=9, 40.9%) and patient deterioration detection systems (n=10, 45.4%) were infrequently specified. Guidance regarding NIV delivery systems was highly variable.  **Conclusion:** Substantial variation exists in Australian hospitals NIV implementation guidance and processes of care, with core definitions and recommendations for safe NIV use lacking. Development and implementation of standardised core recommendations may support clinical decision making, reduce variation in care and improve patient safety and outcomes.  **Key words:** non-invasive ventilation, guidance, adults, acute care, hospital  **Grant support:** Australian Government research training scholarship  **Conflict of interest:** Nil |