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Title: Use of low flow oxygen therapy in a population

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Body: Introduction: Low flow oxygen therapy (LFOT) is treatment for resting hypoxemia ($PaO_2 \leq 55$ mmHg) with COPD, as per classic clinical trials showing increased life expectancy (MRC, Lancet 1981;NOTT, Annals IM 1980). Contempory LFOT has evolved despite limited new evidence to guide usage. Usually LFOT comes from multiple sources making it difficult to capture population incidence and cost, or characterize usage. However, in the province of Alberta, LFOT arises from a single public program. Question: What is the incidence and cost of low flow oxygen therapy (LFOT) and proportion of resting hypoxemia among LFOT users, in a modern population? Results: For 2012, population of Alberta was 3.65 million; total LFOT cost $27.6 million CDN; mean number of LFOT users per month 6,250. Therefore, 171 LFOT users per 100,000 population; program cost $756,000 per 100,000.

Examining LFOT groups, resting hypoxemia accounted for only 64% from qualification by 1st, 2nd or 3rd/final ABG. The remaining 36% of LFOT users did not qualify by resting hypoxemia, including 16% who qualified by air versus oxygen 6 minute walk tests, 11% received oxygen for severe nocturnal desaturation. Summary: A modern population with oxygen therapy from a single source, provided LFOT for 171 users per 100,000 population. Overall cost was $756, 000 CDN per 100,000. Only 64% acquired LFOT for resting hypoxemia. It is not certain what change in life expectancy is conferred by this pattern of oxygen usage.