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**Title:** Adherence to ambulatory liquid oxygen using commercialized dual pressure transducers

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**Body:** Introduction-Treatment adherence is widely recognized as a critical problem in long term oxygen therapy particularly the use of ambulatory liquid oxygen (LOX) systems. Adherence monitoring strategies could be helpful managing patients. Aim-Evaluate patient's adherence to LOX using Visionox®, and compare results with a patient's adherence diary and patient's global perception of use. Methods-Patients using LOX were recruited for a clinical interview, the number of days/week and mean time of use according to patient perception were recorded. Afterwards an adherence diary was given to fulfill for 14 days. During that time Visionox® (Air Products) was attached to the LOX. Visionox® is a small device that uses pressure transducers to detect oxygen flow and patient's respiratory rate, recording it - information is downloaded using dedicated software. Results-19 patients were included, 57.9% male, mean age 61 years old. When asked about their perception of LOX use they reported a mean use of 88.7% of days (78.9% said to use it every day) for a mean time of 03h22m/day. During the 14 days of evaluation, according to the diary the mean use was 75.26% of days for 04h30m and according to the Visionox® it was 72.25% of the days for a mean 04h06m. No difference was found between those methods. Regarding the %days of use declared by the patients it was significantly higher than the diary (p=0.01) and the Visionox® (p=0.01) monitoring. Conclusion-Patients overestimated LOX daily use compared to the adherence found using an adherence diary and objective adherence monitoring. Although no significant difference was found comparing diary and Visionox® use, they could both be helpful in clinical practice.