Ambulatory Pump Transitions in Pulmonary Arterial Hypertension: A Patient and Nurse Experience

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Background

Pulmonary Arterial Hypertension (PAH) is a rare, progressive disease requiring complex long-term treatment. Intravenous prostacyclin therapy, particularly Epoprostenol, remains a gold standard for severe PAH due to its survival benefit [1-2]. However, its short half-life (3–5 minutes) requires continuous infusion via ambulatory pumps, placing substantial responsibility on patients and caregivers [3]. Newer infusion pump technologies aim to improve usability, workflow, and patient confidence and improve experienced challenges:

- High-risk therapy interruption
- Complex pump programming
- Frequent bag or reservoir changes
- Alarm management
- Patient anxiety and caregiver burden

Purpose

To evaluate the experience of transitioning from a legacy infusion pump to a connected ambulatory infusion device from a **PAH patient and specialist PAH nurse** over a 3-month period, focusing on usability, training burden, and impact on daily life.

Methods

Qualitative case study reviewing the Avoset Infusion pump.

Participants:
1 PAH patient receiving IV Epoprostenol and 1 PAH specialist nurse.

Data Collection:
Two semi-structured interviews and five open-ended questions.

Topics Explored:
Device usability; Training and learning curve; Alarm experience; Medication reservoir preparation; Impact on Quality of Life.

Analysis Method:
Reflexive Thematic Analysis.

Results

Theme	Patient Perspective	Nurse Perspective
Usability	• Very intuitive interface • Fewer menus • Faster setup	• Simpler programming • Easier priming process • Automatic volume calculations reduced risk of programming errors
Learning Curve	Comfortable using device within ~25 minutes	Training time reduced from **90 minutes > ~40 minutes**
Medication Reservoir Preparation	Easier and faster than previous system	• Simpler workflow • Less overwhelming process for patients
Alarm Burden	Initial occlusion and air-in-line alarms until setting adjustment	Alarm issues addressed through parameter adjustments and clinical guidance
Clinical Support	Clinical support reduced anxiety during device transition, troubleshooting alarms and settings	Collaboration with manufacturer clinical nurse helped optimize pump settings and support the patient
Quality of Life	• Increased confidence managing therapy • Patient preferred the new device • Quieter pump reduced unwanted public attention	• Observed smoother patient adaptation • Improved daily therapy management

Nurse

Training reduced
Easier programming
Less setup complexity
Faster patient adoption

Patient

User-friendly device
Confident in 25 minutes
Improved daily life

Conclusions

Transitioning to the Avoset ambulatory infusion pump was associated with

- Improved usability
- Reduced training burden
- Simplified reservoir preparation
- Greater patient confidence in therapy management

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