

Air Fluidized Therapy Bed Compared to Fluid Immersion System Bed for Pressure Injury Healing: A Case Series

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BACKGROUND

- Promoting healing of severe pressure injuries (PIs) in compromised patients is a clinical challenge.
- Published clinical data guiding support surface selection is very limited.
- Several support surfaces have been marketed to treat stage 3 or stage 4 pressure injuries, but literature to support these marketing efforts is almost non-existent.

OBJECTIVE

- To gather comparative clinical outcomes data on 1) air fluidized therapy (AFT) bed* and 2) fluid immersion system (FIS) mattress.**
- Healing rates were evaluated for patients with stage 3 or 4 pressure injuries.

METHODS

- After obtaining written informed consent, patients meeting inclusion/exclusion criteria were randomized to receive one of the 2 study beds.
- Standard care was provided with the exception for support surface selection and the addition of a weekly wound measurement by a 3-D camera measurement tool.
- Weekly assessments were recorded for up to 12 weeks.

RESULTS

- Five patients were enrolled. One patient declined to participate immediately after enrollment and was excluded.
- 2 Patients received the AFT bed and 2 the FIS bed. All 4 evaluable patients had stage 4 PIs.
- Healing rates:
 - Area: AFT patients had an average area reduction 7.1 cm²/week, FIS patients had an average reduction in area of 2.4 cm²/week.
 - Volume: AFT patients averaged 20.9 cm³/week, FIS patients averaged 2.7 cm³/week.
- Length of stay on the beds averaged 13 days on AFT and 29 days on FIS.

DISCUSSION

- AFT patients had 59% faster area healing rate and 87% faster volume healing rates in this limited patient sample.
- FIS patients LOS averaged 29 days as compared to 13 days on AFT.
- No additional PIs occurred on either bed.
- The lack of sufficient study enrollment significantly limited the ability to make significant conclusions in this study.

CONCLUSION

- In these cases, patients treated with AFT appeared to have faster healing rates than those with FIS.
- Further research is needed with a larger sample size to confirm these directional findings with statistical significance.



*Envella® AFT bed, Hill-Rom, Batesville IN **Dolphin FIS®, Joerns Healthcare

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Case 1: FIS-01 62 year old male admitted for care of enterocutaneous fistulas with a Stage 4 sacral wound. He consented to the study and was placed on the FIS mattress. NPWT was continued. On week 5, the patient's health was deteriorating, and care goals were changed to palliative care. He was discontinued from study. Before discontinuation, his wound area had decreased 6.9% but volume had increased by 13%.



Case 2: FIS-02 73-year-old male admitted to the LTACH for an infected Stage 4 PI on his right buttock, and a Stage 4 coccyx wound (target wound for study). At week 3, he was discharged. The volume and area of his coccygeal wound had decreased by 61% and 57% respectively.



Case 3: AFT 01 83-year-old female who was admitted to the LTACH for an infected sacral pressure ulcer. She requires full assistance to mobilize, is cognitively impaired, has fecal incontinence and a urinary catheter. On day 20 days, she was discharged with a 43% decrease in wound surface area and 38% decrease in volume.



Case 4: AFT 02 71-year-old male admitted to the LTACH for care of his stage 4 PI. He requires partial assistance to mobilize, is cognitively aware, and has a urinary catheter. He was randomized to the AFT bed and his PI was treated with NPWT. On day 19, he was discharged from the LTACH. His labs had all improved. The volume and area of his sacral PI area had both reduced by 44%.

Top photos were upon study admission. Bottom photos were at study discontinuation.