

Background

Rural Health Boards and District General Hospitals (DGHs) face significant challenges recruiting and retaining medical staff contributing to workforce shortages and difficulties maintaining sustainable services. Medical students on placements in rural settings can have limited exposure to the breadth of careers available outside traditional hospital settings such as pre-hospital and wilderness medicine.

Early positive exposure to rural clinical environments has been associated with increased intention to work in rural settings. Innovative educational interventions that showcase local opportunities and career pathways while providing high-quality clinical training may therefore play a role in both improving student experience and strengthening future workforce recruitment and retention in rural Wales.

Aims

To evaluate the influence of an outdoor pre-hospital emergency medicine (PHEM) simulation programme on student engagement, clinical confidence, career awareness, and medical workforce recruitment and retention in rural Wales.

Project / Methods

Students participated in immersive outdoor PHEM simulation scenarios followed by structured debriefing. A mixed-methods evaluation assessed;

- Confidence in managing patients outside traditional healthcare settings
- Enthusiasm for simulation-based learning
- Intention to live, study or work in rural settings
- Free-text participant feedback



Figure: students managing simulated PHEM casualties.

Results

Participants (n=42) completed paired pre- and post-intervention questionnaires and were included in the quantitative analysis. The students were also invited to provide free-text feedback regarding their experience of the programme and suggestions for future development which were then analysed.

Quantitative findings

Data were analysed using paired statistical methods. Pre- and post-intervention responses were compared.

- Confidence in pre-hospital management**
Students’ self-reported confidence in managing patients outside traditional healthcare environment improved significantly (p < 0.001).
- Future intentions to live, study or work in West Wales**
Students reported significantly more positive attitudes towards living, studying or working in West Wales (p < 0.001).
- Enthusiasm for simulation-based learning**
High levels of enthusiasm were reported prior to and following the session, suggesting a ceiling effect and potential selection bias, limiting the potential for measurable improvement.

Qualitative findings

Analysis of the post-intervention free-text responses generated three interrelated themes;

- Authenticity and experiential learning enhanced educational value**
Students consistently described the session as; ‘engaging’, ‘valuable’, and ‘authentic’ referencing the practical nature of the session and opportunity to apply clinical knowledge outside conventional clinical settings.
- Students desired greater realism and curricular integration**
Suggestions to enhance the programme focused on further exposure to PHEM equipment, additional scenarios, and incorporating more simulation within the undergraduate curriculum.
- Exposure to PHEM broadened career awareness**
Students reported increased curiosity regarding careers in PHEM, requesting further opportunities to engage with specialist equipment and operational aspects of pre-hospital care.

Table 1. Quantitative outcomes

Outcome	Test	Pre Median (IQR)	Post Median (IQR)	Wilcoxon on V (W)	P-value	Effect size (r)
Confidence managing patients PHEM	Wilcoxon Signed-Rank	2 (2-2.75)	3(3-4)	10.5	<0.001* *	0.81
Enthusiasm for Simulation	Wilcoxon Signed-Rank	4 (3-4)	4 (4-4)	11.0	0.058	0.29
Intention to live, study or work in West Wales	Wilcoxon Signed-Rank	2 (2-3)	3 (2-3)	16.0	<0.001* *	0.54

Table 2. Descriptive Statistics and Proportions

Outcome	Pre	Post	Absolute Increase
Confidence	26.2%	100%	+73.8%
Enthusiasm	100%	100%	0%
West Wales Aspiration	31%	66.7%	+35.7%



Discussion

Overall, participation in the outdoor simulation programme was associated with statistically significant improvements in confidence managing patients outside conventional healthcare settings and in participants' reported willingness to consider future practice in West Wales, while enthusiasm for simulation-based learning remained consistently high throughout.

Novel simulation programmes delivered in DGHs and rural settings can provide high-quality educational experiences while promoting awareness of diverse medical careers, including pre-hospital and wilderness medicine. By demonstrating the unique clinical, educational and lifestyle opportunities available in rural areas, these initiatives may enhance student engagement, enrich placement experiences and contribute to ongoing recruitment and retention strategies in undersubscribed training regions.

References:

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