

## **UC Irvine**

# **Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health**

### **Title**

Topical Oxygen Therapy in the Treatment of Non-Healing Chronic Wounds: A Systematic Review

### **Permalink**

<https://escholarship.org/uc/item/1n91c6kx>

### **Journal**

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 25(3.1)

### **ISSN**

1936-900X

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### **Publication Date**

2024-03-24

### **DOI**

10.5811/westjem.20449

### **Supplemental Material**

<https://escholarship.org/uc/item/1n91c6kx#supplemental>

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**Table 1.**

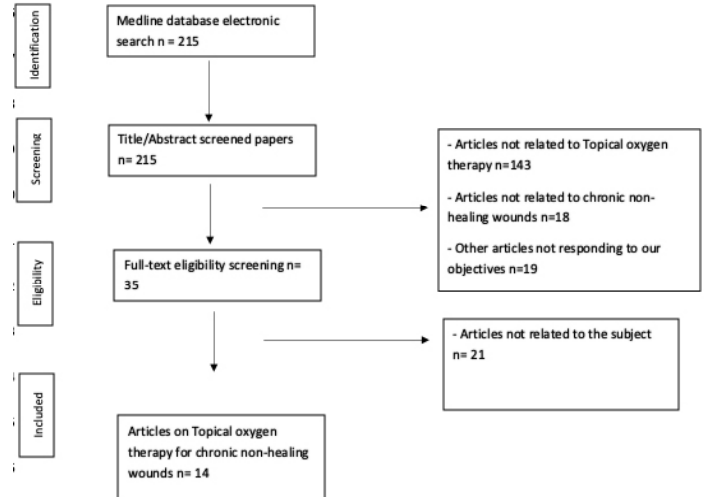
	Before		3 Months After		6 Months After	
	Control	Training	Control	Training	Control	Training
No. Charts	287	269	344	282	349	391
Female	152 (53.0)	156 (58.0)	188 (54.7)	152 (53.9)	196 (56.2)	201 (51.4)
Age < 18	40 (13.9)	40 (14.9)	38 (11.1)	25 (8.9)	46 (13.2)	62 (15.9)
Age 18-49	84 (29.3)	82 (30.5)	120 (34.9)	96 (34.0)	116 (33.2)	141 (36.2)
Age 50-65	58 (20.2)	61 (22.7)	71 (20.6)	72 (25.5)	71 (20.3)	72 (18.5)
Age >= 65	105 (36.6)	86 (32.0)	115 (33.4)	89 (31.6)	116 (33.2)	115 (29.5)
ESI 1	17 (5.9)	12 (5.5)	9 (2.6)	12 (4.3)	10 (2.9)	16 (4.1)
ESI 2	61 (21.3)	57 (21.2)	74 (21.5)	56 (19.9)	95 (27.2)	87 (22.3)
ESI 3	161 (56.1)	150 (55.8)	205 (59.6)	170 (60.3)	193 (55.3)	228 (58.3)
ESI 4 or 5	48 (16.7)	50 (18.6)	56 (16.3)	44 (15.6)	51 (14.6)	60 (15.4)

Data are presented as n (percentage of charts in the column).

**Table 2.**

	# charts	Median Total Words (IQR)	P-value for Main Fixed Effect Ignoring Effect of Resident	P-value for Main Fixed Effect Adjusting for the Random Effect of Resident (18 residents)
<b>Intervention</b>				
Training	673	1713 (1405, 2110)	<0.001	0.02
Control	693	1553 (1240, 1903)		
<b>PGY Level</b>			0.003	0.59
PGY 1	348	1577 (1239, 1975)		
PGY 2	459	1647 (1317, 2022)		
PGY 3	559	1643 (1299, 2049)		
<b>ESI Category</b>			<0.001	<0.001
ESI 1&2	359	1887 (1566, 2344)		
ESI 3	796	1619 (1330, 1972)		
ESI 4&5	211	1202 (1026, 1495)		
<b>Gender</b>			0.003	<0.001
Male	629	1563 (1238, 1939)		
Female	737	1680 (1343, 2088)		
<b>Age (years)</b>	1365	correlation r=0.52	<0.001	<0.001

topical oxygen is efficacious at increasing chronic wound healing rates and time, decreasing hospital stay rates and duration, and decreasing amputation and recurrence rates. Topical oxygen is less expensive than many treatments, fits virtually all patient lifestyles, and has even shown bactericidal/bacteriostatic properties.



**Figure 1. PRISMA flowchart for article selection process.**

## 63 Topical Oxygen Therapy in the Treatment of Non-Healing Chronic Wounds: A Systematic Review

Adam Pearl, Katherine O’Neil

**Background:** Chronic wounds are a significant economic and physical burden on both patients and the health care system. Although new therapies have shown efficacy, many have high costs, are not readily available, and are not feasible for most patients’ lifestyles. A promising emerging therapy is topical oxygen, which delivers concentrated oxygen directly to the non-healing wound.

**Methods:** A systematic review was conducted via PubMed between 1979 and July 2022, yielding 215 articles. After a full-text review, articles discussing other therapies for chronic wounds were excluded. Fourteen papers were included.

**Results:** In the treatment of non-healing diabetic foot ulcers, topical oxygen therapy demonstrated rates of complete closure of 80% for Stage II and 50% for Stage III, compared to 0% for standard of care. Additionally, flora transitioned from anaerobes to a flora rich in aerobic species. In non-diabetic foot ulcers, topical oxygen demonstrated increased rates of closure and decreased rates of infection, particularly noted in MRSA infections.

**Conclusion:** This systematic review demonstrates that

## 64 Enhancing Toxicology Teaching with Escape Rooms

Mason Jackson, Emily Grass, Sara Dimeo

**Background:** Gamification of medical education has proven to increase learned engagement and retention. Escape rooms, a gamification strategy, have been demonstrated to increase medical student clinical reasoning and information retention while increasing learner motivation. No published work exists regarding the application of gamification or its efficacy to toxicologic concepts.

**Objective:** To assess the efficacy of escape rooms in teaching basic toxicology concepts to medical students and residents. It is hypothesized that implementation of toxicology-based escape rooms will improve the learner’s understanding of the concepts presented.

**Methods:** Over a one-year period, third- and fourth-year medical students and PGY 1-3 emergency medicine residents from various allopathic and osteopathic programs participated in toxicology-based escape rooms which were followed by a short debriefing lecture. In this IRB approved study, three iterations of the escape room were presented. Participants were given a survey to assess their knowledge of concepts presented both before and after the escape room using a 1-5 Likert scale where 1 corresponded to “very poor”, 3 corresponded to “average” and 5 indicated “excellent”.