

When Tracheostomy Supplies Run Out: Exploring Workflows and Workarounds for Patients and Families in Nebraska

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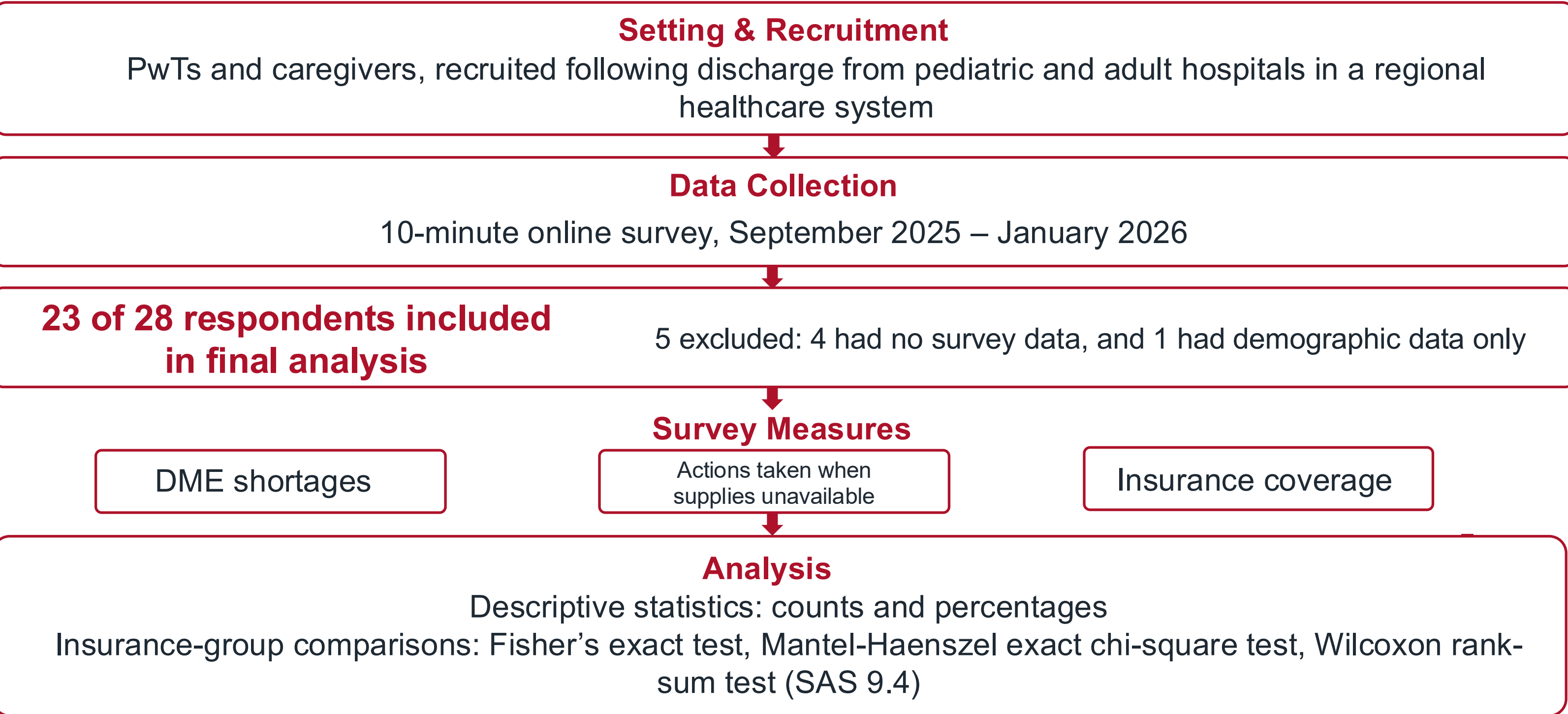
BACKGROUND

- In a pilot study, **durable medical equipment access was identified as a barrier to quality of life** for patients with tracheostomies (PwTs).¹
- People with tracheostomies depend on **timely access to durable medical equipment (DME)** for safe care at home.^{2,3,5}
- Supply shortages may increase **caregiver burden**, prompt potentially **unsafe workarounds**, and contribute to unnecessary healthcare utilization.^{3,4,5}
- Limited information exists regarding the **frequency of tracheostomy supply shortages** and how patients and caregivers respond when supplies are unavailable.^{2,5}

OBJECTIVE

- To characterize **tracheostomy DME shortages** and identify the **resources PwTs and caregivers use** to address supply gaps.

METHODS



DISCUSSION

- Frequent supply shortages, affecting 65% of respondents, despite generally supportive insurance experiences suggest that **coverage alone does not ensure supply access**.
- Insurance-group differences were **descriptive and not statistically significant**, although Medicaid respondents contacted more entities on average.
- Small sample and insurance-group sizes limit interpretation**; larger studies should examine operational and supply-chain contributors.

CONCLUSIONS

- Tracheostomy supply shortages were common**, affecting 65% of respondents.
- Families frequently used **multiple formal and self-directed resources** to address supply gaps.
- Findings suggest a need for **clearer, more reliable shortage-resolution pathways**.

ACKNOWLEDGEMENTS

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REFERENCES

1. Alghami N et al. Post-Tracheostomy Care Transitions: A Needs Assessment. 9th International Tracheostomy Symposium. 2025 Oct
2. Foran PL, et al. Tracheostomy-related durable medical equipment: insurance coverage, gaps, and barriers. *Am J Otolaryngol*. 2024;45(2):104-179.
3. Rickert S, et al. COVID-related tracheostomy tube supply shortage and mitigation strategies for safe tracheotomy care in children. *Int J Pediatr Otorhinolaryngol*. 2024;180:111943.
4. Toly VB, Blanchette JE, Musil CM. Mothers caring for technology-dependent children at home: What is most helpful and least helpful? *Appl Nurs Res*. 2019;46:24-27.
5. Wise A, et al. Challenges with pediatric home tracheostomy supplies. *Respir Care*. 2023;68(Suppl 10).

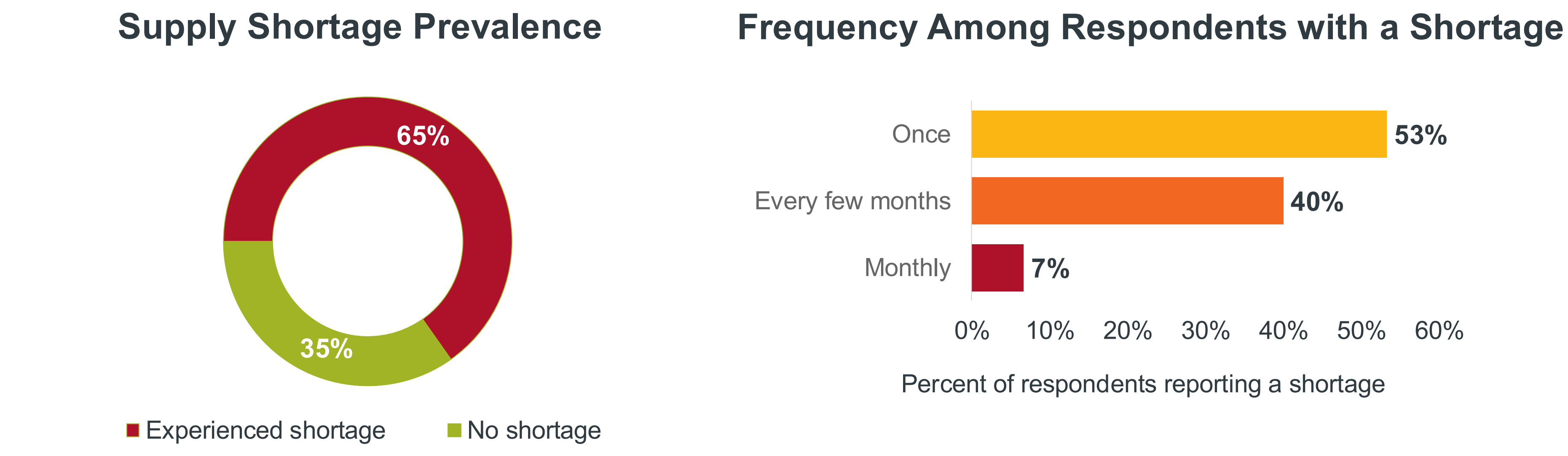
RESULTS

Table 1. Characteristics and Shortage Experience

Caregivers and patients with a tracheostomy (n = 23)			
Characteristic	n (%)	Characteristic	n (%)
Care setting		Insurance (n = 22)*	
Pediatric	14 (60.9)	Medicaid ± Medicare (no private)	6 (27.3)
Adult	8 (34.8)	Private ± other	16 (72.7)
In transition, pediatric to adult	1 (4.3)	Ever experienced a supply shortage	
Years with tracheostomy		No	8 (34.8)
Less than 1	5 (21.7)	Yes	15 (65.2)
2	3 (13.0)	Shortage frequency (among 15 with a shortage)	
3	4 (17.4)	Only happened once	8 (53.3)
4	2 (8.7)	One time every few months	6 (40.0)
5 or more	9 (39.1)	One time a month	1 (6.7)

*One patient with Medicare only was excluded from insurance categories. Percentages may not sum to 100 because of rounding.

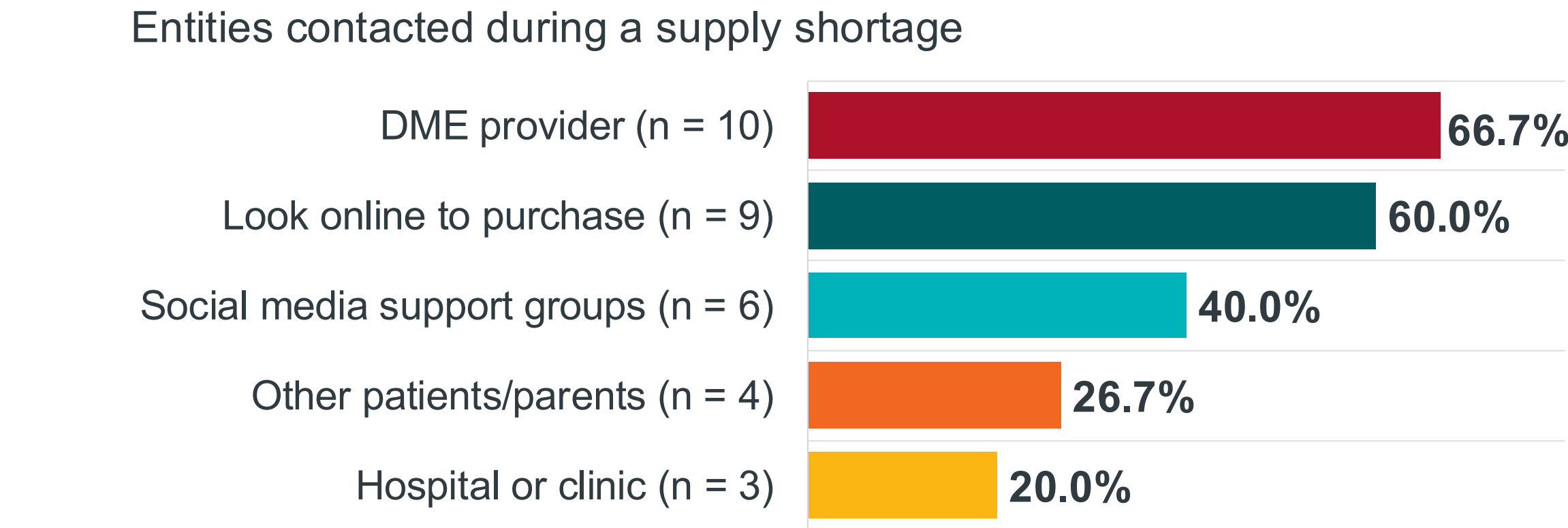
Figure 1. Prevalence and Frequency of Tracheostomy Supply Shortage



65% of respondents experienced a tracheostomy supply shortage.

Figure 2. Responses to Tracheostomy Supply Shortages, n = 15

A. Resources Used



Percentages use the 15 patients with at least one shortage as the denominator and sum to more than 100% because multiple entities could be selected.

B. Number of Entities Contacted



C. Combinations of Resources Used

Each row is a unique combination reported during a supply shortage

Number of entities	DME	Hospital / clinic	Online purchase	Other patients / parents	Social media groups	n (%)
1					•	1 (6.7)
			•			2 (13.3)
2	•		•			2 (13.3)
	•	•				3 (20.0)
	•				•	1 (6.7)
	•	•	•			1 (6.7)
3	•	•		•	•	1 (6.7)
4	•		•	•	•	2 (13.3)
		•	•	•	•	1 (6.7)

• = entity contacted. Rows sum to 15 patients. Patients who never had a shortage (n = 8) are not shown.

Figure 3. Contacts by Insurance Group

Patients with a shortage: Medicaid ± Medicare, no private (n = 5) vs private ± other (n = 10)

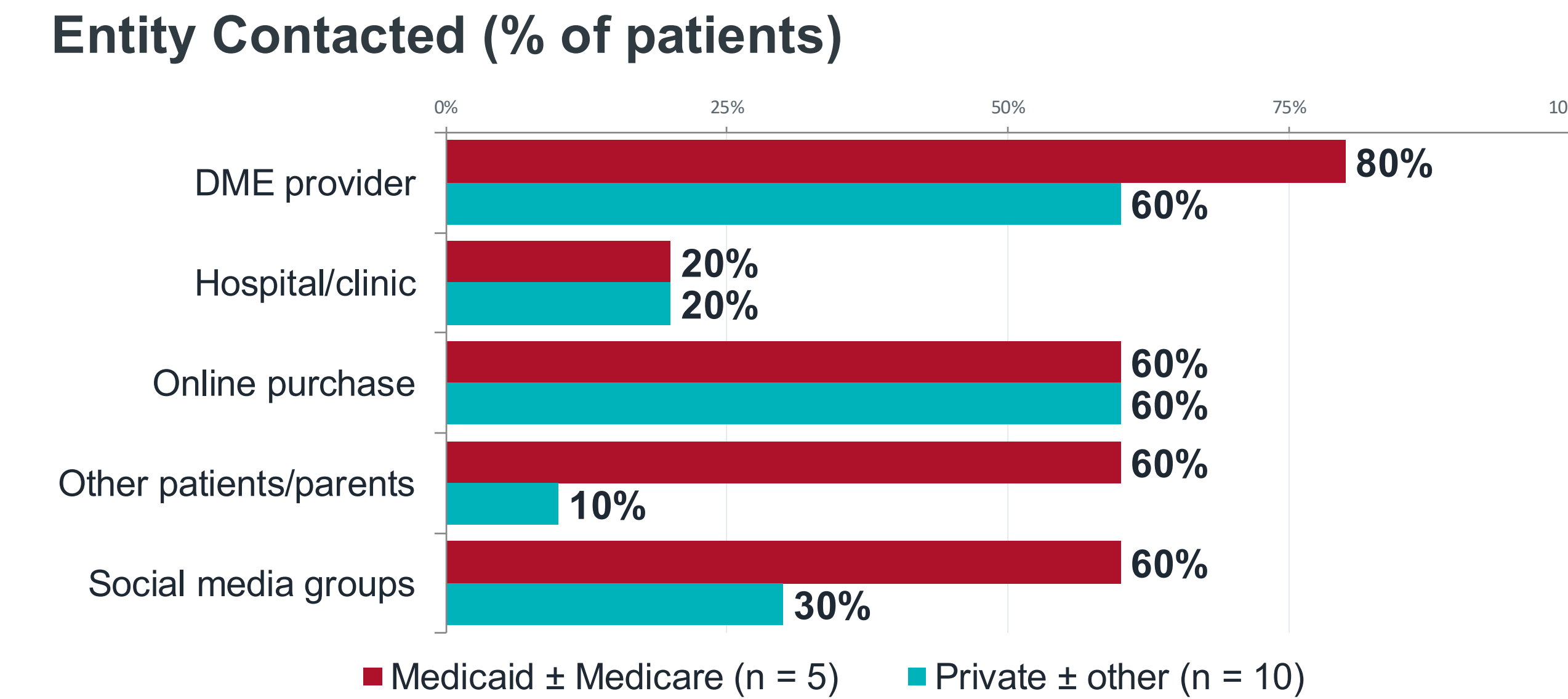


Table 2. Shortage Experience by Insurance Group

Medicaid ± Medicare (no private) vs private ± other (n = 22)

Characteristic	Medicaid ± Medicare, no private (n = 6)	Private ± other (n = 16)	P-value
Ever experienced a shortage, n (%)	5 (83.3)	10 (62.5)	0.62†
Among patients with a shortage (n = 5 vs n = 10)			
Number of entities contacted, mean (range)	2.8 (1–4)	1.8 (1–4)	0.15‡
Entity contacted, n (%)			
DME provider	4 (80.0)	6 (60.0)	0.60†
Hospital or clinic	1 (20.0)	2 (20.0)	1.00†
Look online to purchase	3 (60.0)	6 (60.0)	1.00†
Other patients/parents	3 (60.0)	1 (10.0)	0.08†
Social media support groups	3 (60.0)	3 (30.0)	0.33†

†Fisher’s exact test. ‡Wilcoxon rank-sum test. One patient with Medicare only was excluded. Patients could select more than one entity.

Among those experiencing shortages, 67% contacted multiple entities and 80% used online, peer, or social media resources.