Infusing Safety: Comparing Oncology Infusion Outcomes at Home Infusion Services vs. Hospital-Based Outpatient Infusion Centers

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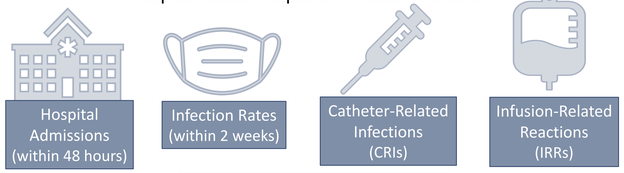
BACKGROUND

- Meticulous attention to safety protocols is essential to mitigate adverse events in patients receiving oncology infusion therapies.
- Hospital outpatient departments have been the traditional setting for infusion therapy.[1]
- There has been an increase in the utilization of home healthcare delivery for specialty medications, including oncology infusions.[2]
- This shift raises questions about the safety of administering oncology infusions in the home compared to traditional hospital outpatient departments.

OBJECTIVE

To **examine and compare safety outcomes** associated with oncology infusions administered at home infusion services and hospital-based outpatient infusion centers



Safety Outcomes of Interest

DISCLOSURES & CONTACT

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The authors have **no conflicts** of interest to declare.

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METHODS

This was a retrospective cohort study of patients receiving oncology infusion therapy

Inclusion Criteria

- Oncology infusions from Fairview Home Infusion and/or M Health Fairview hospital-based outpatient infusion centers occurring between January 1, 2020 – December 31, 2023
- Patients ≥ 18 years of age

Therapies of Interest

- Adriamycin/ doxorubicin
- Avastin/ bevacizumab/ Mvasi/ Zirabev
- Bavencio/ avelumab
- Cytarabine
- Dacarbazine/ DTIC
- Dacogen/ decitabine
- Darzalex/ daratumumab
- Gemzar/ gemcitabine
- Herceptin Hylecta/ trastuzumab and hyaluronidase
- Herceptin/ trastuzumab/ Trazimera
- Ifex/ifosfamide
- Imfinzi/ durvalumab
- Keytruda/ pembrolizumab
- Navelbine/ vinorelbine
- Velcade/ bortezomib
- Vidaza/ azacytidine

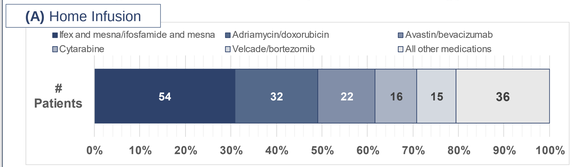
Statistical Analysis:
Demographics and safety events were compared across sites-of-care using chi-squared tests

145 patients; 1,242 infusions seen within home infusion

4,082 patients; 50,624 infusions seen within hospital-based outpatient infusion centers

RESULTS

Figure 1: Most commonly infused oncology medications occurring within **(A)** home infusion and **(B)** infusion centers



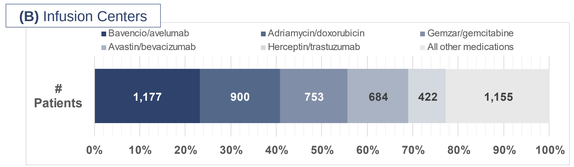


Table 1. Comparison of Patient Sociodemographic & Safety Outcomes By Site of Care

		Both	Center	Home Infusion	Total	p-value
	Total Patients	N= 95	N= 4,086	N= 50	N= 4,231	
Age Category	18-29 years old	3 (3.2%)	57 (1.4%)	15 (30.0%)	75 (1.8%)	<0.0001
	30-49 years old	26 (27.4%)	562 (13.8%)	20 (40.0%)	608 (14.4%)	
	50-64 years old	52 (54.7%)	1,200 (29.4%)	14 (28.0%)	1,266 (29.9%)	
	65-74 years old	12 (12.6%)	1,294 (31.7%)	1 (2.0%)	1,307 (30.9%)	
	75+ years old	2 (2.1%)	973 (23.8%)	0 (0.0%)	975 (23.0%)	
Sex	Female	44 (46.3%)	2,291 (56.1%)	33 (66.0%)	2,368 (56.0%)	0.06
	Male	51 (53.7%)	1,795 (43.9%)	17 (34.0%)	1,863 (44.0%)	
Interpreter Needed	No	88 (92.6%)	3,936 (96.3%)	46 (92.0%)	4,070 (96.2%)	0.05
	Yes	7 (7.4%)	150 (3.7%)	4 (8.0%)	161 (3.8%)	
Acute Care Visit in 48 hours	Any (ED/Inpatient)	16 (16.8%)	468 (11.5%)	7 (14.0%)	491 (11.6%)	0.23
	ED visit	7 (7.4%)	249 (6.1%)	4 (8.0%)	260 (6.1%)	0.75
	Inpatient	11 (11.6%)	258 (6.3%)	4 (8.0%)	273 (6.5%)	0.11
Respiratory Infection within 2 weeks	Any infection (COVID/RSV/Influenza)	3 (3.2%)	135 (3.3%)	0 (0.0%)	138 (3.3%)	0.42
	COVID	3 (3.2%)	124 (3.0%)	0 (0.0%)	127 (3.0%)	0.46
	RSV	0 (0.0%)	1 (0.0%)	0 (0.0%)	1 (0.0%)	0.98
	Influenza	0 (0.0%)	13 (0.3%)	0 (0.0%)	13 (0.3%)	0.79

Table 2. Adverse Events Documented within Home Infusion

Total Patients	**145**
Patients with a late infusion	27 (18.6%)
Patients with a med switch	30 (20.7%)
Patients with a CRI	5 (3.4%)
Patients with an IRR	14 (9.7%)
Infusions per patient, median (IQR)	5 (2,10)
Total infusions	**1,242**
Total late infusions	43 (3.5%)
Total CRIs	6 (0.5%)
*CRI Grade 3**	*6(0.5%)*
Total IRRs	17 (1.4%)
*IRR Grade 1 (Mild)**	*15 (1.2%)*
*IRR Grade 3 (Prolonged)**	*2 (0.2%)*

** Severity of the adverse events were graded based on the Common Terminology Criteria for Adverse Events[3]:*
Grade 3 CRI – IV antibiotic, antifungal, or antiviral intervention indicated; invasive intervention indicated.
Grade 1 IRR – mild transient reaction; infusion interruption not indicated; intervention not indicated.
Grade 3 IRR – prolonged (e.g., not rapidly responsive to symptomatic medication and/or brief interruption of infusion); recurrence of symptoms following initial improvement; hospitalization indicated for clinical sequelae.

DISCUSSION

- No significant difference in the incidence of hospital admissions and respiratory infections across sites of care *(Table 1)*.
  - Both home infusion and infusion centers may provide comparable safety outcomes in immediate post-infusion complications and short-term infection rates.
- Low rates of CRIs and IRRs within patients receiving care through home infusion *(Table 2)*.
  - Favorable safety profile for home infusion with a low incidence of serious adverse events.
- Future analysis will explore differences in rates and severity of CRIs and IRRs across sites of care to provide further insights regarding the comparative safety of home infusion vs. infusion centers.

CONCLUSION

- These findings contribute to the ongoing discussion surrounding oncology care delivery.
- Home infusion has the potential to enhance patient-centered care and maintain high safety standards.
- By understanding the safety outcomes with home infusion around oncology therapies, healthcare providers may make informed and personalized decisions regarding site of care and resource allocation.

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