# One-Year Retrospective Evaluation of Blood Administration Practices within LifeFlight Medicine

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**7,791**
missions in 2024

**226**
missions with PRBC administered (2.9%)

**492**
units transfused

3% wastage

**59%**
of transfusions for trauma

## Background & Aim

LifeFlight Medical Services (LFM) delivers critical care across Queensland by **rotary-wing, fixed-wing and road** responses, serving dispersed populations with variable access to advanced trauma and medical care.

LFM has carried packed red blood cells (PRBC) since 2016.

**Aim:** define and compare the incidence, patient demographics, tasking characteristics and clinical features of PRBC administration across the LFM retrieval network in the 2024 calendar year.

## Method

- Retrospective review of **all 2024 missions** where PRBC administration by an LFM doctor was recorded
- Physical review of every written chart uploaded to Air Maestro where blood was given
- No data collected on fibrinogen concentrate
- 141 missions (70 primary, 71 IFT) excluded from the non-transfused comparison cohort for incomplete data

## Adjunct Therapy Compliance

Tranexamic acid (overall) **83%**

IFT 80% | Primary 89%

Calcium chloride (overall) **85%**

IFT 84% | Primary 88%

Warming blood **81%**

Compliance was stable across the review period.

## Transport Platform

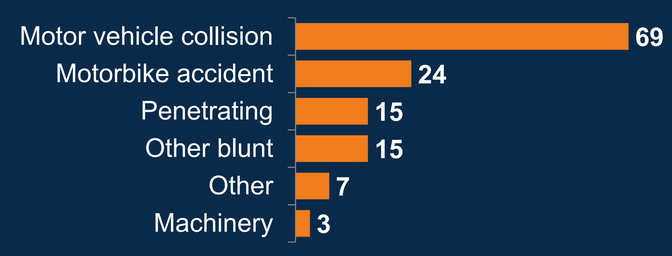
| Platform | Missions | PRBC | Rate | Mean units |
|---|---|---|---|---|
| Rotary-wing | 4,919 | 178 | 3.6% | 2.1 |
| RFDS fixed-wing | 1,425 | 13 | 0.9% | 2.8 |
| LFM jet | 1,100 | 3 | 0.2% | 1.3 |
| Joint road (QAS) | 518 | 31 | 5.9% | 2.2 |

Rotary-wing and road-based platforms showed the highest transfusion incidence. PRBC use has risen gradually year on year since 2021.

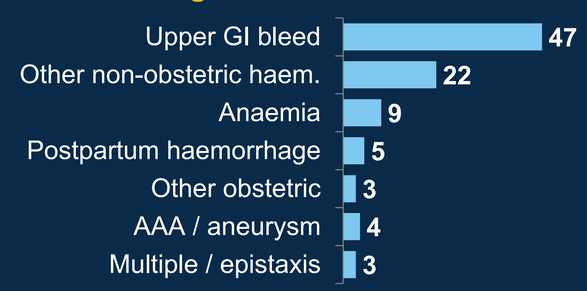
## Indications & Mechanisms

**133 (59%) trauma | 93 (41%) medical/surgical**

### Trauma




### Medical / surgical




Mean units: MVC 2.4, motorbike 2.8, penetrating 2.2, upper GI bleed 1.6, other internal haemorrhage 2.1, anaemia 1.8. Maximum: 6 units in 2 primary trauma missions; 11 units in one IFT.

## Demographics

Mean age in years (± SD), transfused vs non-transfused patients.

| Cohort | Transfused | Not | p |
|---|---|---|---|
| IFT male | 57 ± 18 n=84 | 54 ± 22 n=3,778 | 0.47 |
| IFT female | 52 ± 22 n=42 | 50 ± 23 n=2,429 | 0.70 |
| Primary male | 44 ± 20 n=77 | 45 ± 21 n=823 | 0.73 |
| Primary female | 41 ± 20 n=21 | 45 ± 23 n=398 | 0.53 |

**No statistically significant age difference** in any IFT or primary subgroup.

## Is 2 units O-neg enough?

For primary taskings LFM carries 2 units of O-negative and 2 units of O+ PRBC.

**4 of 1,311**

primary missions gave >2 units to a female under 50 years (**0.3%** of primary missions; 0.05% of all missions, or 1 in 1,948 of all missions).

## Conclusions

- PRBC administration within LFM is **infrequent but essential**: 2.9% of missions, 492 units, 3% wastage
- About 60% of transfusions are for **primary trauma**; rotary-wing and road platforms had the highest incidence
- No significant age differences between matched transfused and non-transfused patients
- Only 0.3% of primary missions needed >2 units in a female under 50 years
- Compliance with adjunct therapies was stable (TXA 83%, calcium 85%, warming 81%)

*This project received ethics approval from Metro South HREC (HREC/2025/QMS/116476). LifeFlight acknowledges its commercial arrangement with Queensland Health and Retrival Services Queensland (RSQ), and the role of RSQ as tasking agency and data custodian.*

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