

Royal Cornwall Hospital: Where does our blood go?

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Aims

- Share local data relevant to Amber Alert Actions
- Transfusion after surgery
- Comparison to published data
- O negative usage & fate

Hospitals told to postpone non-urgent surgery after NHS blood supplies drop low

The health service has triggered its first ever 'amber alert' and asked hospitals to manage blood stocks

Blood stock levels

at 8am on Tuesday 11 October 2022



We aim to maintain **6 days of stock** for red blood cells.

Platelets stock levels

at 8am on Tuesday 11 October 2022



We aim to maintain a minimum of **1 day of stock** for platelets (except AB-)

Royal Cornwall Hospital

About us:

- DGH: 750 beds (3 hospitals)
- 23 theatres (6 remote sites)
- Surgery: Vascular, Orthopaedic, Trauma, Gynae-Oncological, Colorectal, Upper GI, Gynae, Urology, Breast, ENT, Oral, Ophthalmic, Max-Fax...
- Obstetrics: ~4000 deliveries per year
- No: Cardiothoracic, HPB, Spinal, (Major Trauma)
- 2021: 5896 RBC units = <500 /month = ~110units per week



Royal Cornwall Hospital

About us:

- Pre-operative Screening & Anaemia correction
- GP Referral Pathway for oral iron intolerance
- Established Cell Salvage
- Policy for O positive emergency blood



Background

- Pre-Amber Alert
- Emergency Blood Management Plan

“Which surgery has >20% risk of transfusion?”

- Where does our blood go?

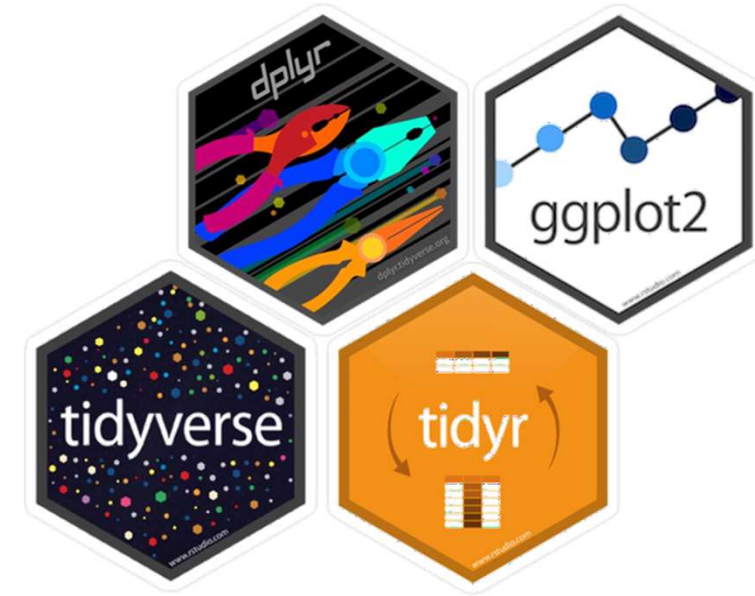
Not sure, but not to elective surgery!



Audit

Transfusion after Surgery

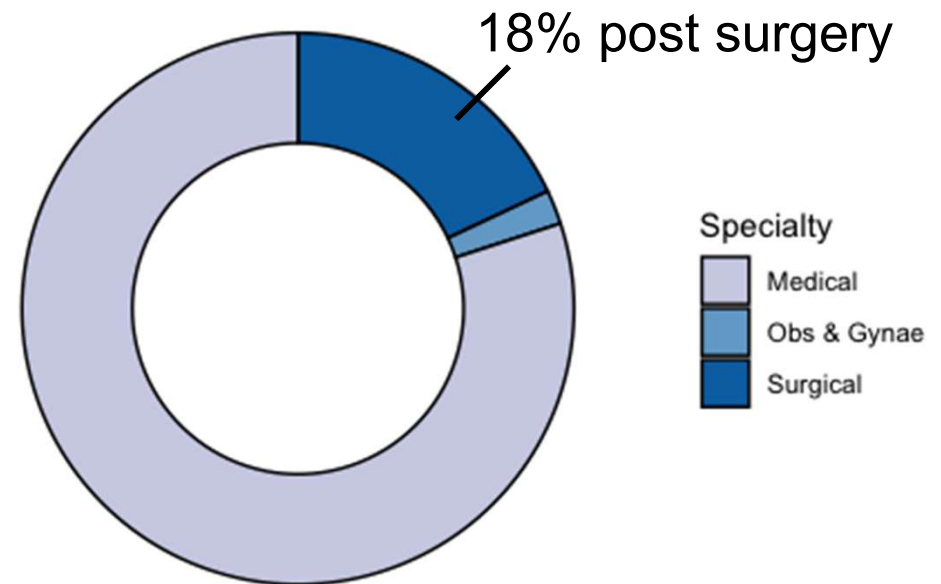
- 3 months Theatre activity (4652 cases)
- Cross referenced with Transfusion data
- 2 day, 7 day and 30 day intervals post-op
- Notes review



Where does our blood go?

3 months: Oct 2021 - Dec 2021

- 1387 Units transfused
 - 18% Surgical: 254 units
 - 2% O&G: 31 units
 - 80% Medical: 1102
-
- Caveats: Pre-op transfusion, non surgical = medical



Transfusion after surgery

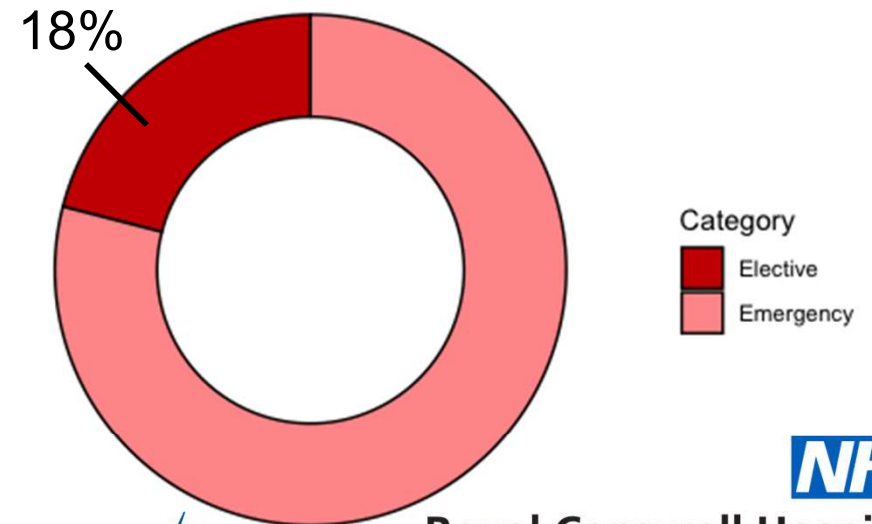
RCHT

	RCHT Oct 21 - Dec '21
RBC units	1387
Non-Surgical	80% (1102)
Surgical	18% (254)
O & G	2% (31)

+ Gynae

268 units (excl Obs)

- 47 Elective surgery (18%)
- 221 Emergency surgery (82%)



Transfusion after Category 3 Surgery

21 RBC units < 30 days (8 Patients)

Unrelated to Category 3 Surgery

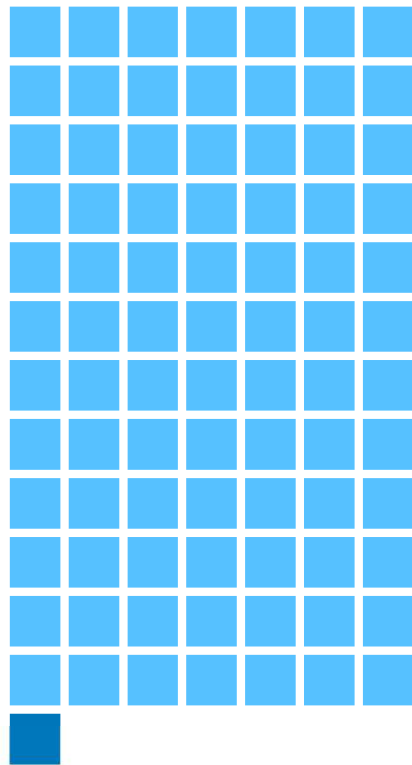
- Tooth Extraction (8)
- Tooth Extraction (5)
- Nose Caутery (2)
- Cataract (2)
- Laparoscopic Hysterectomy (1)

Related to Category 3 Surgery

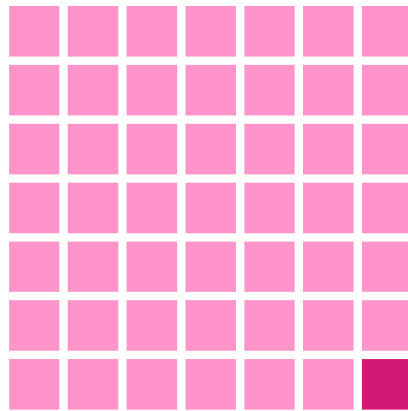
- Tonsillectomy (1)
- Laparoscopic Cholecystectomy (1)
- Total Hip Replacement (1)



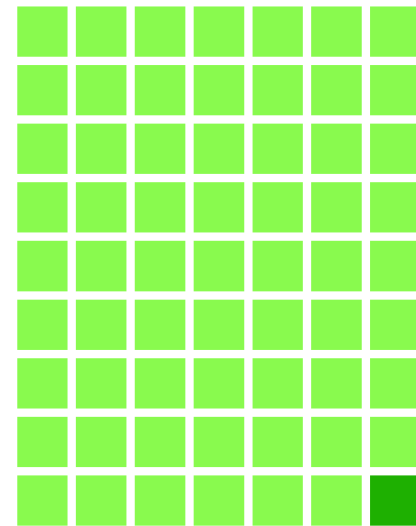
THR



Tonsillectomy



Lap Chole



Transfusion after Elective Cat 1 & 2 Surgery

26 RBC units < 30 days (10 Patients)

Related to Surgery

- TURBT (4)
- TURBT (2)
- Laparoscopic Nephrectomy (3)
- Laparoscopic Nephrectomy (2)

Related to Surgery

- Ovarian Cancer Surgery (1)
- Ovarian Cancer Surgery (1)
- Mastectomy (3)
- Right Hemicolectomy (3)



Transfusion after Elective Cat 1 & 2 Surgery

26 RBC units < 30 days (10 Patients)

Unrelated to Surgery

- Ovarian Cancer Surgery (5)
- Mesenteric biopsy (2)



Transfusion related to Elective Surgery

11 patients

Patient	Pre-op Hb (g/L)	IDA	Pre-op IV Iron
TURBT (4)	84	No	No
Mastectomy (3)	100	No	No
Right Hemicolectomy (3)	126	Yes	No
Nephrectomy (3)	99	No	No
TURBT (2)	107	Yes	Yes
Nephrectomy (2)	107	No	No
Ovarian Cancer (1)	117	No	No
Ovarian Cancer (1)	110	No	No
Lap Chole (1)	129	No	No
Tonsillectomy (1)	117	?	?
THR (1)	143	No	No



Conclusions

RCHT: Oct 2021 - Dec 2021

- No surgery with $> 20\%$ transfusion risk
- Burden of all elective surgery on RBC Transfusion is low
 - 22 units in 3 months
- Burden of Category 3 surgery on RBC Transfusion is negligible
 - 3 units in 3 months
- 33 units wasted



Amber Alert Actions

- No overt restriction on Surgery
- Withdrew support for prophylactic XM at peripheral sites
- Covertly reduced elective revision joint surgery
- Why does EBM plan target elective surgery?
- How can we reduce our RBC usage?



Where do all the red blood cells (RBCs) go? Results of a survey of RBC use in England and North Wales in 2014

Hazel Tinegate,¹ Kate Pendry,¹ Michael Murphy,¹ Paul Babra,² John Grant-Casey,² Cathy Hopkinson,³ Jot Hyare,⁴ Megan Rowley,¹ Frances Seeney,³ Denise Watson,⁴ and Jonathan Wallis⁵

- 46,111 RBC units analysed
 - 67% Medical
 - 27% Surgical
 - 6% Obs & Gynae

Where does the blood go now?

Comparison

	2014 Tinegate et al.	RCHT Oct 21 - Dec '21
RBC units	46,111	1387
Non-Surgical (=Medical)	67%	79.5% (1102)
Surgical	27%	18.3% (254)
O & G	6%	2.2% (31)

- Non-Surgical ≠ medical
- ! Non-operative surgical patients
- ! Pre-operative transfusion
- Does include units that are probably not directly related to surgery
- O&G includes 14 units from Gynae surgery
- Difficult retrospective classification
However...

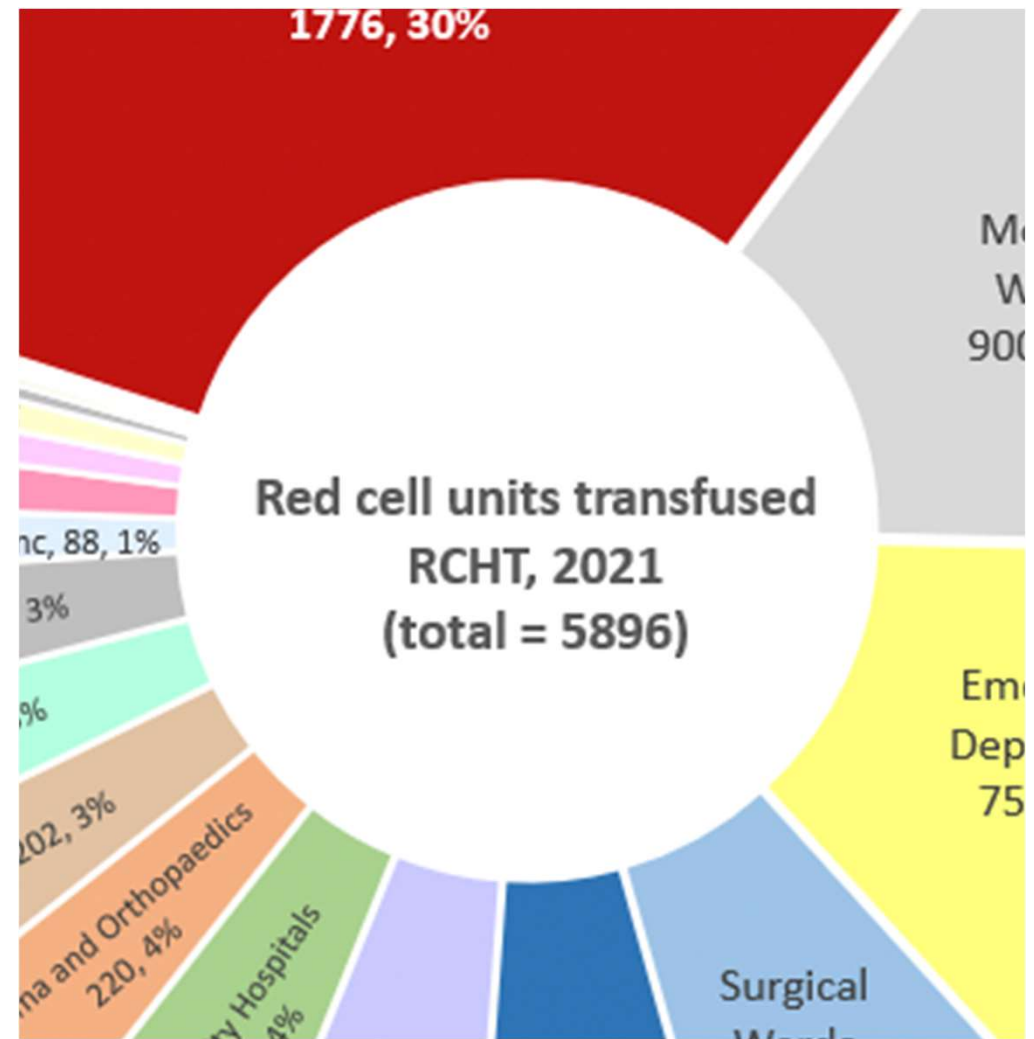
**444 Expected Surgical RBC units.
254 = 43% reduction**

Wait...

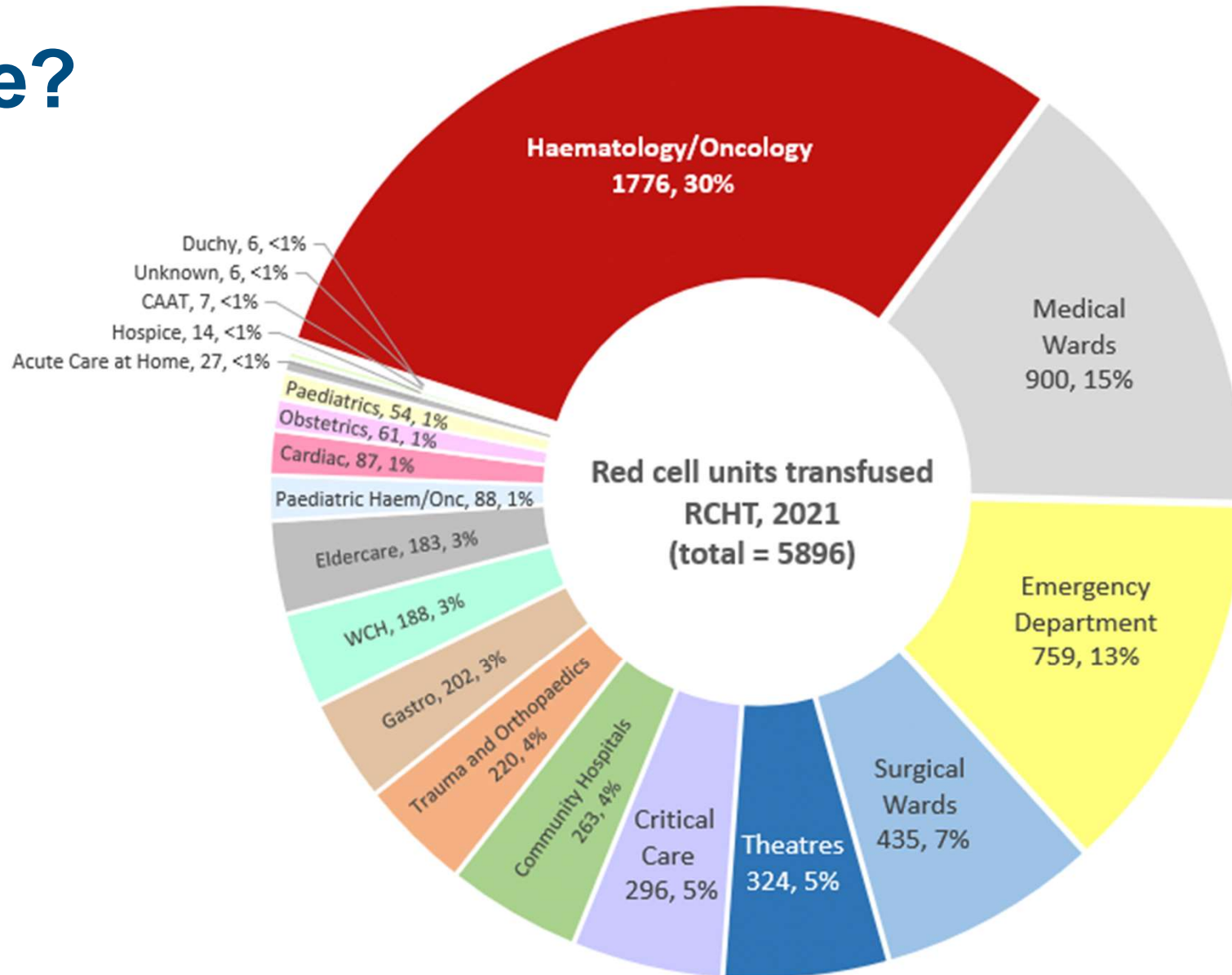
	2014 Tinegate et al.	RCHT Oct 21 - Dec '21
RBC units	46,111	1387
Adjusted RBC (Non Cardiac/HPB/Neuro/Transplant)	42,156	1387
Surgical	19.8%	18.3% (254)

2021 RBC Usage

Abie Parsons

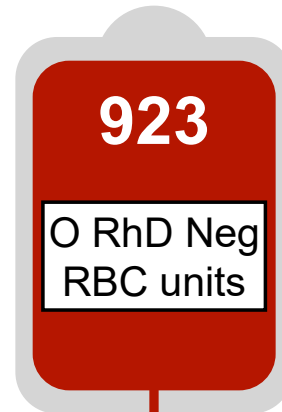


Where?

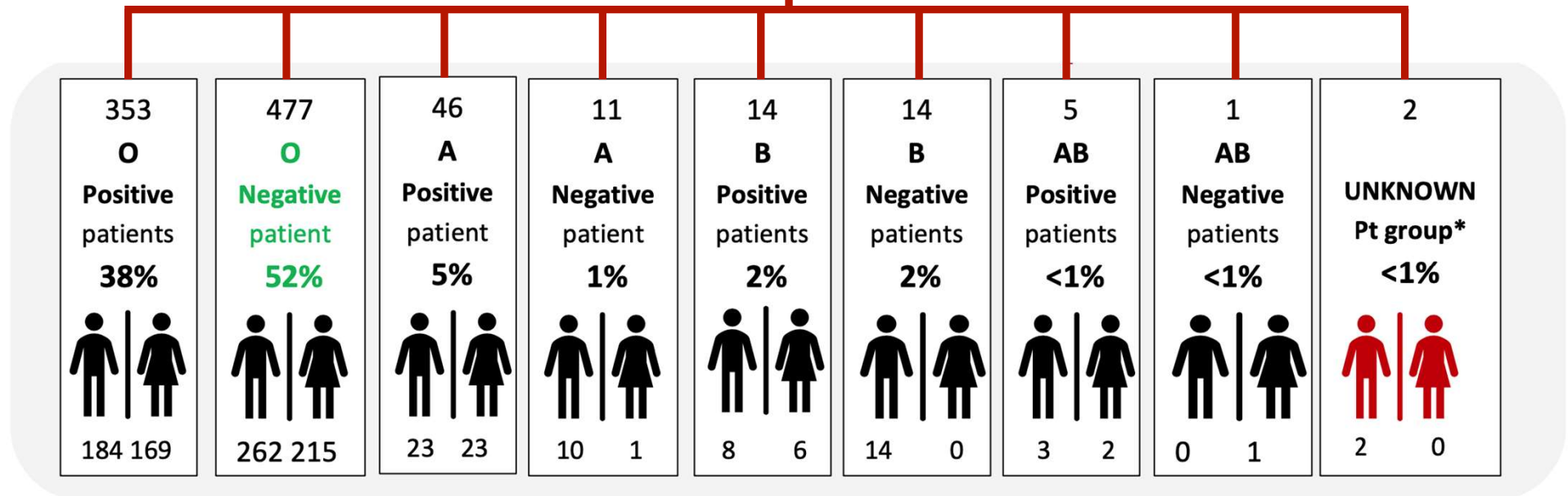


O negative Usage

16% overall stock

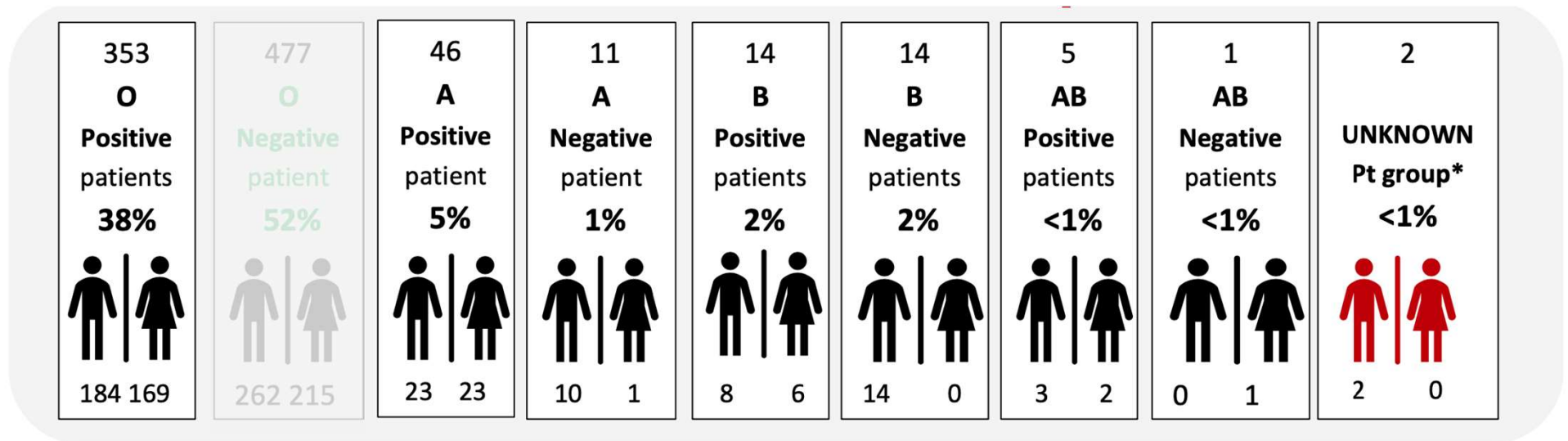
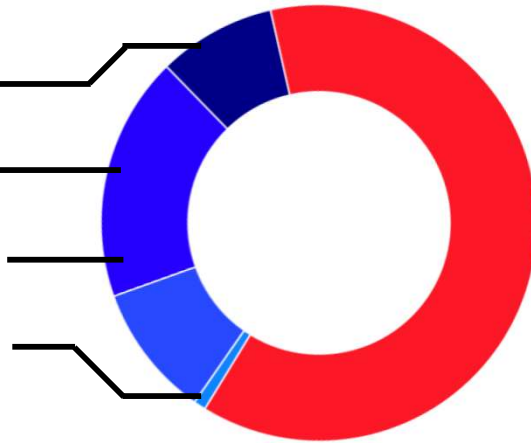


- 446 units (48%) went to non-O-negative recipients

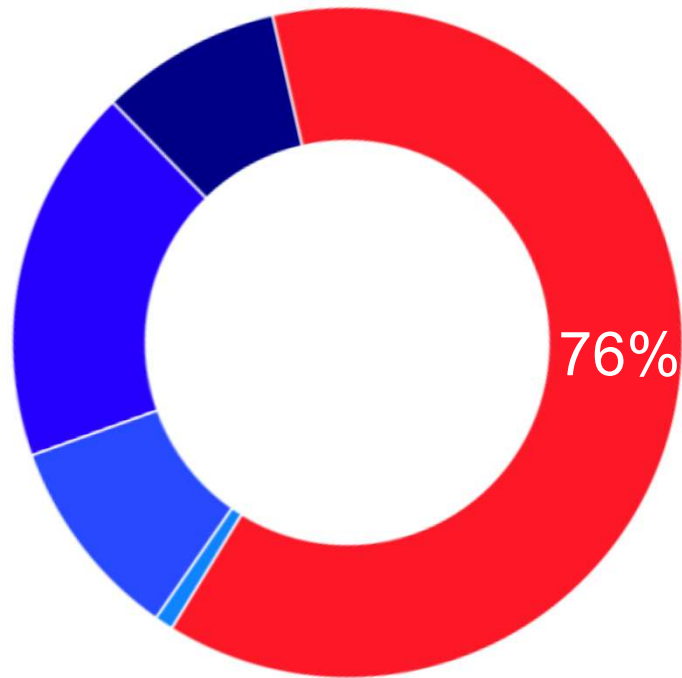


Non O Neg recipients of O RhD Neg RBC

- 81 Emergency use
- 44 Neonatal issues
- 39 Antigen requirements
- 4 NHSBT Cross Matched

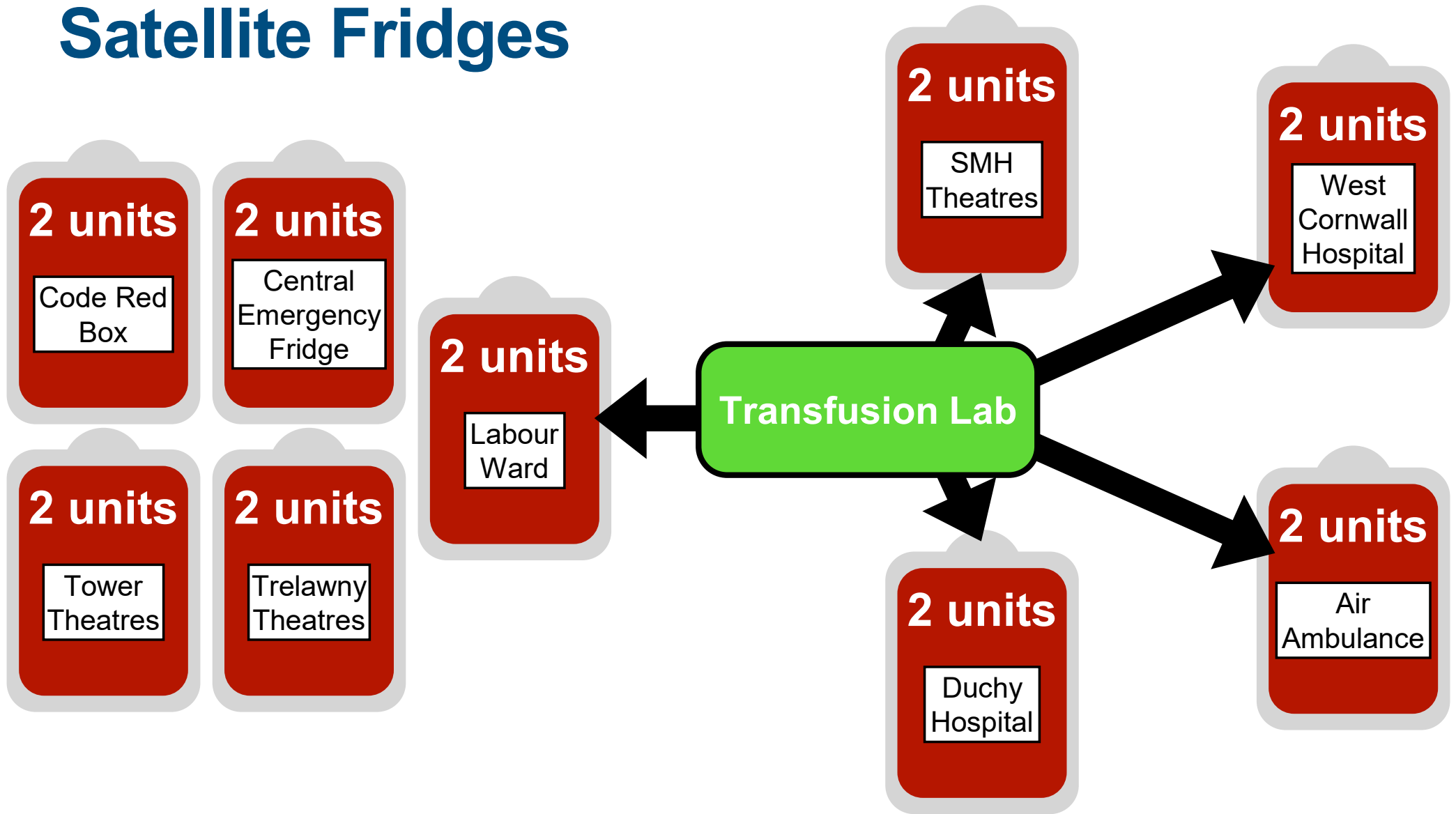


Non O Neg recipients of O RhD Neg RBC



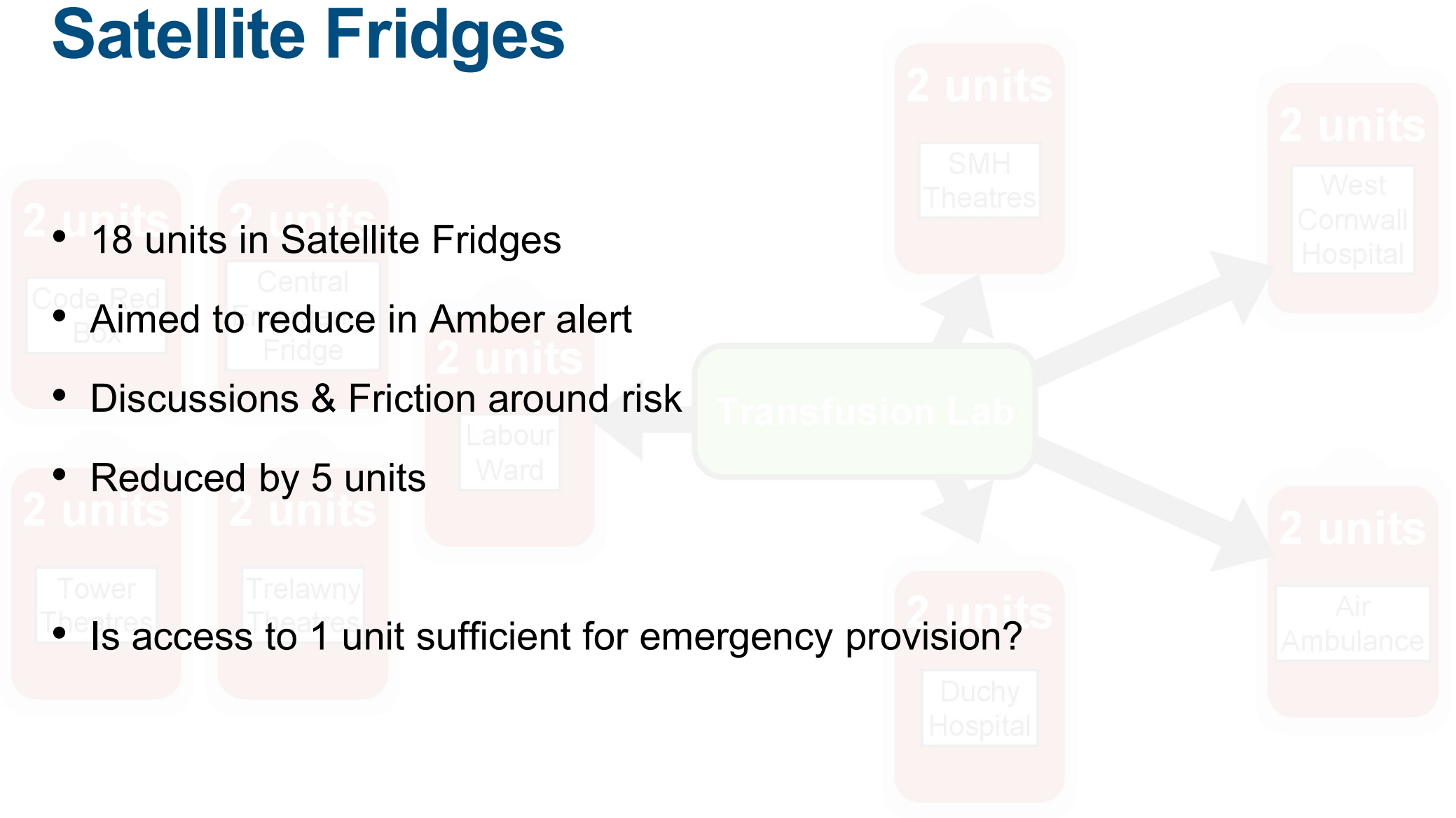
- **276 units Short Dated**
- 30% of all O RhD Neg issued
- All but 2 units within 7 days of expiry
- All for Stock management
- No special requirements
- **46 units O RhD Neg wasted**

Satellite Fridges



Satellite Fridges

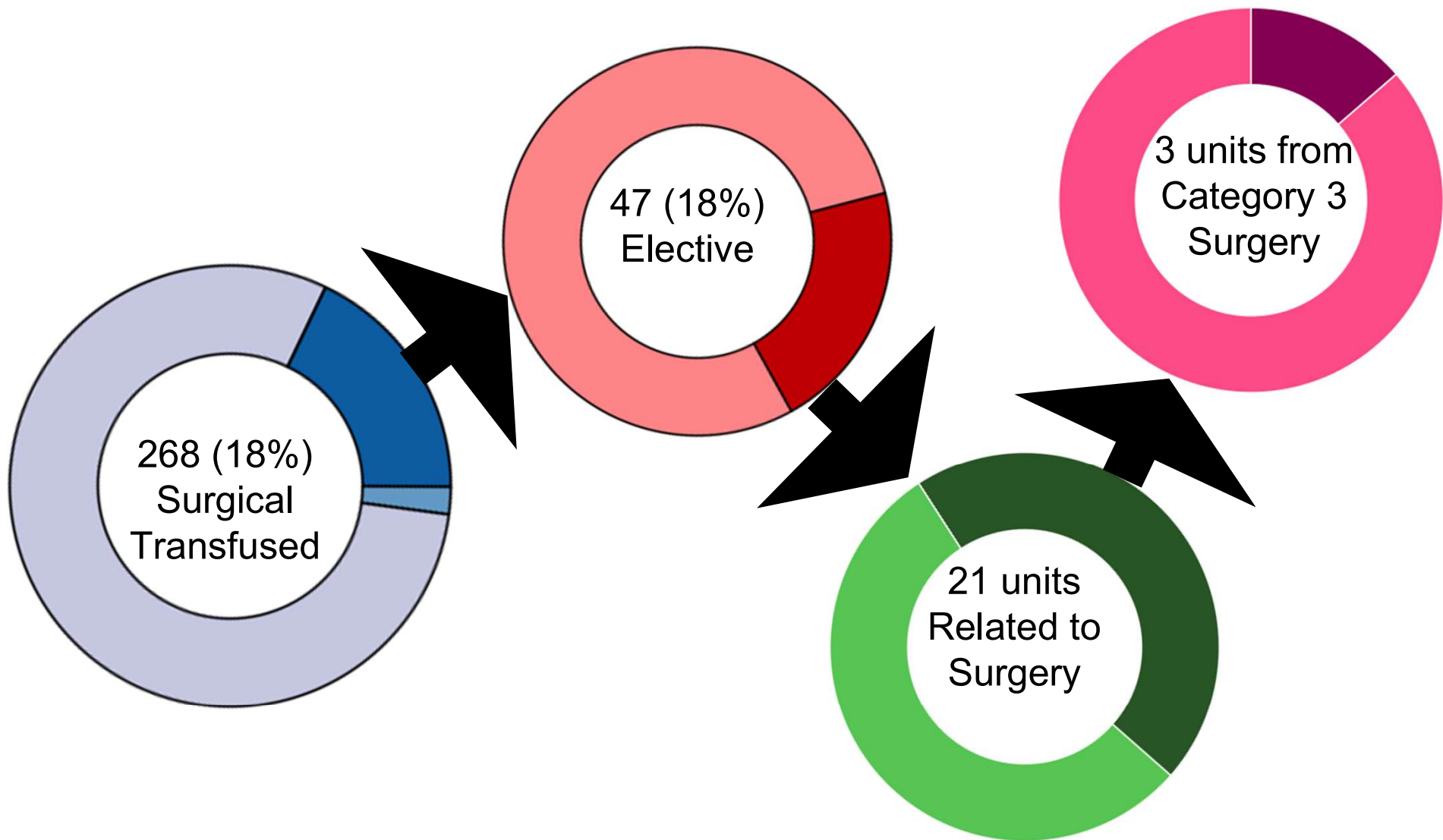
- 18 units in Satellite Fridges
- Aimed to reduce in Amber alert
- Discussions & Friction around risk
- Reduced by 5 units
- Is access to 1 unit sufficient for emergency provision?

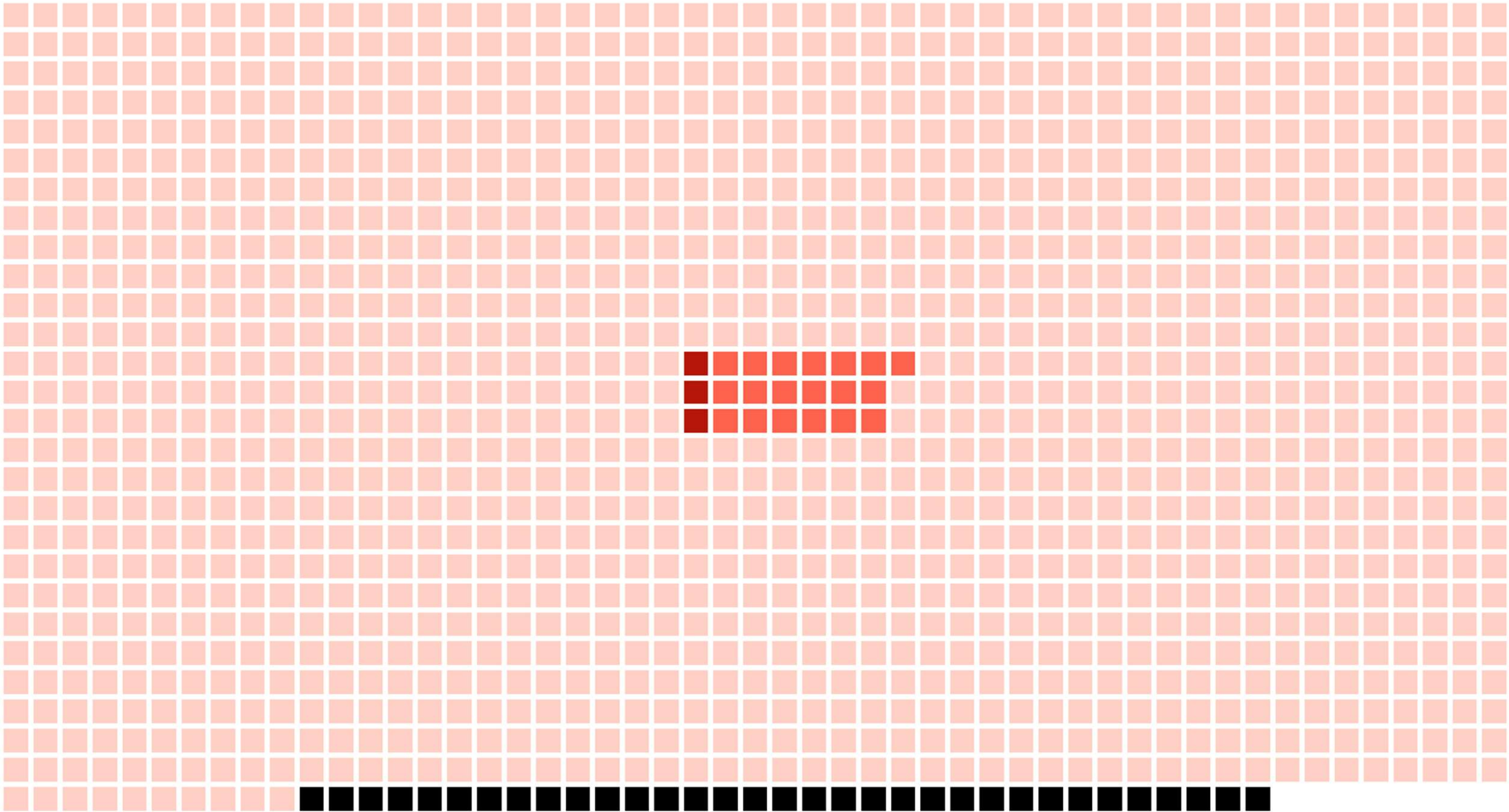


Satellite blood usage

2019 - 2022 (3.5 years)

Site	Surgical use	Medical use
Trelawny Theatres	2 (1)	2 (1)
Tower Theatres	1	3 (1)
WCH	0	6 (2)
Duchy	0	0
SMH	0	-
Air Ambulance	-	13*





Conclusions

- The burden of elective surgery on RBC usage is low
- The burden of Category 3 surgery on RBC transfusion is very low
- 30% of our O RhD Neg usage is related to stock management
- Risk discussions with clinicians may help to reduce this
- Further reduction on blood usage:
 - may be found with improved stock management
 - may need to be targeted by performance data rather than policy

Questions?