Bijwerkingen plasma
A summary of international data on plasma transfusion reactions

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Plasma transfusion indications

Clinical condition	GoR
1. Correction of congenital or acquired deficiencies of clotting factors (for which there is not a specific concentrate), when the PT or aPTT ratio is >1.5:	
- Liver disease:	
- *active bleeding*	1C+
- *prevention of bleeding in the case of surgery or invasive procedures*	2C
- During treatment with vitamin K antagonists (if prothrombin complex, which is the first choice treatment, is not available):	1C+
- *in the presence of major or intracranial haemorrhage*	
- *in preparation for surgery than cannot be delayed*	
- Acute disseminated intravascular coagulation with active bleeding, in association with correction of the underlying cause	1C+
- Microvascular bleeding during massive transfusions (>1 blood volume), even before the results of PT and aPTT	1C+
- Deficiencies of single clotting factors, in the absence of specific concentrates (e.g. of FV), in the presence of active bleeding or to prevent bleeding during an invasive procedure	1C+
2. Apheretic treatment of thrombotic microangiopathies (thrombotic thrombocytopenic purpura, haemolytic-uraemic syndrome, HELLP syndrome), as a replacement fluid	1A
3. Reconstitution of whole blood for exchange transfusions	2C
4. Hereditary angioedema in the case that C1-esterase inhibitor is not available	2C+

Legend: GoR: Grade of recommendation; HELLP: haemolytic anaemia elevated liver enzymes and low platelet count

Liumbruno, G., Bennardello, F., Lattanzio, A., Piccoli, P., & Rossetti, G. (2009). Recommendations for the transfusion of plasma and platelets. Blood Transfusion, 7(2), 132–50.

Plasma types

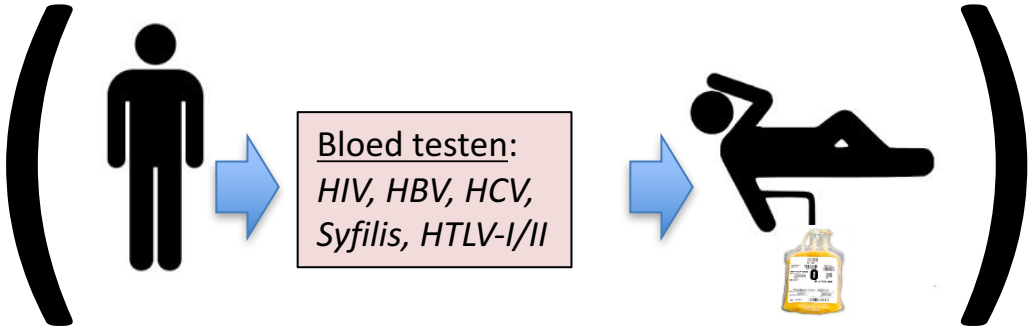
Quarantined Fresh Frozen Plasma (Q-FFP)

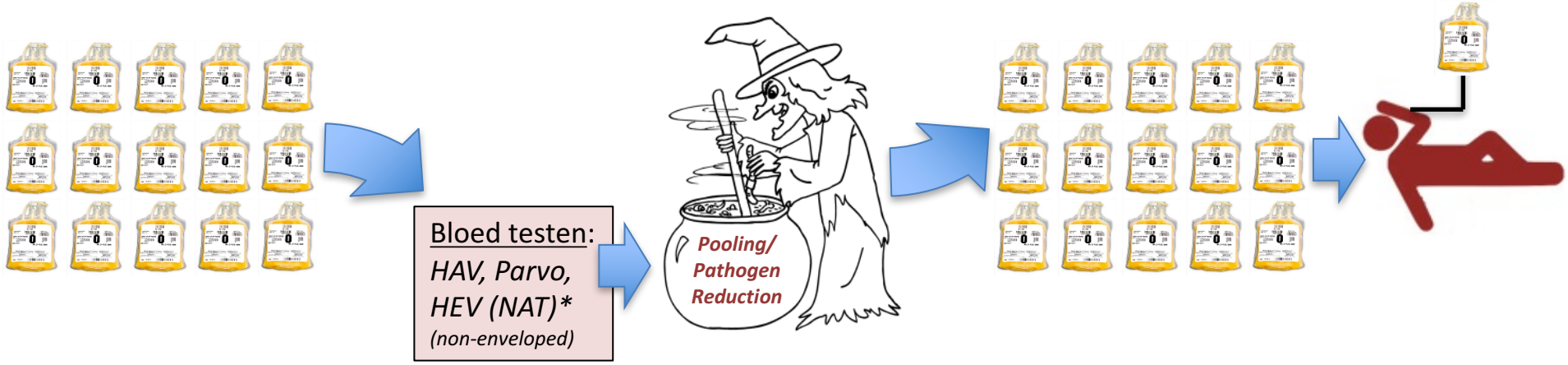
- Aferese plasma (van één donor) in quarantaine voor zes maanden
- Donor getest op bepaalde ziekten
- Hertesten na zes maanden (window period)
- Plasma gebruikt als donor twee testen haalt
- Verloopt: 24 maanden na donatie

Plasma types

Solvent/Detergent treated pooled Plasma (SDP) – e.g. Omniplasma™

- Plasma van ~1000 donors gepoold
- Pathogeen reductie proces op pool
- Plasma gedeeld in eenheden





*Testen levels van antilichamen tegen deze virussen

Plasma transfusion reactions

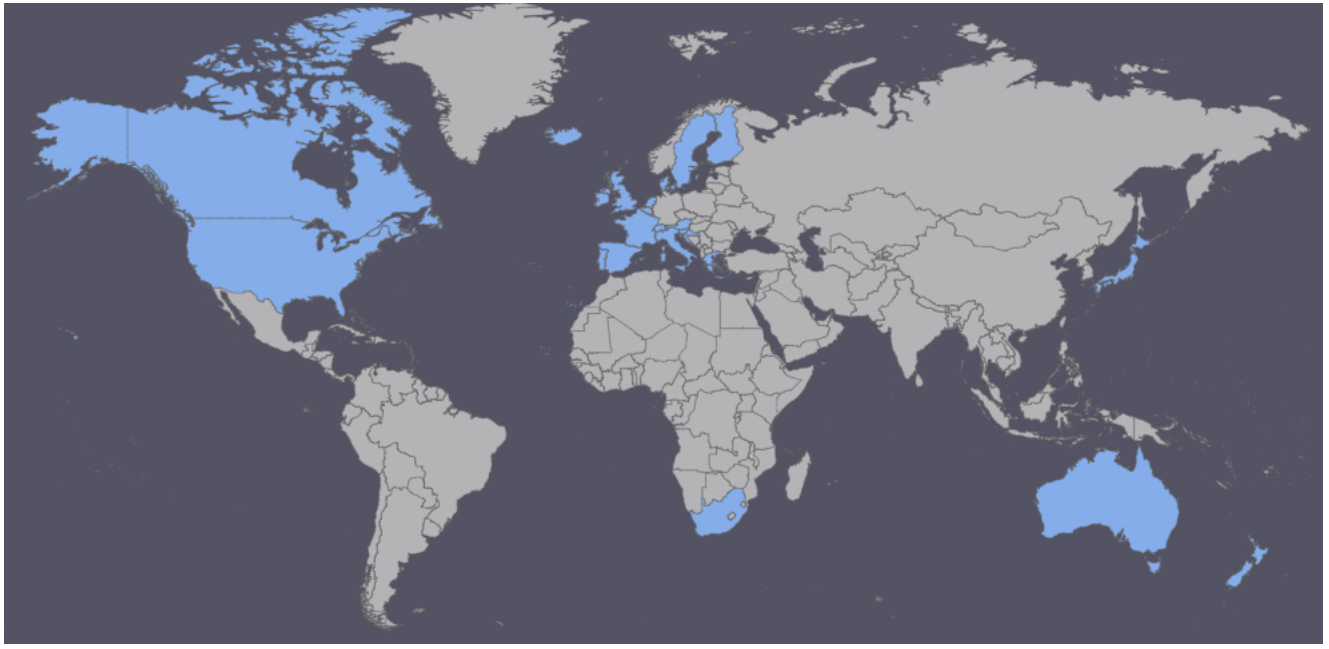
- Allergic/anaphylactic reaction
- Febrile Non-Hemolytic Transfusion Reaction (FNHTRs)
- Acute hemolytic transfusion reaction (via RBC alloimmunization)
- Bacterial transfusion reaction
- Transfusion Related Acute Lung Injury (TRALI)
- Transfusion Associated Circulatory Overload (TACO)
- Venous thrombo-embolism (DVT, PE)
- Hyperfibrinolysis

ISTARE

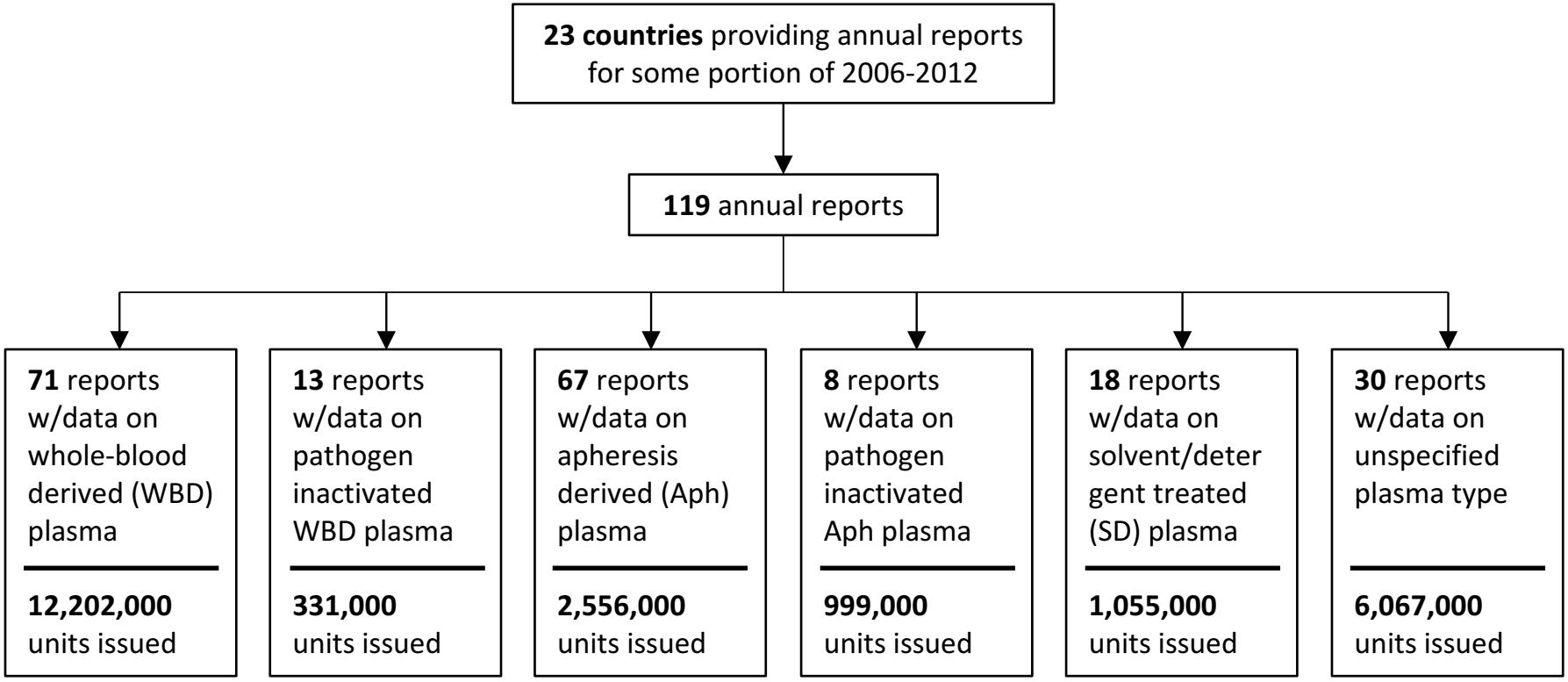
- **I**nternational **S**urveillance of **T**ransfusion-**A**ssociated **R**eactions and **E**vents

> *International web database for reporting and analyzing all adverse reactions and events that threaten the recipient's and donor's health status and quality of life.*

- Set up in 2008 –contains 7 years of haemovigilance data from 24 countries on adverse events following transfusion of blood products



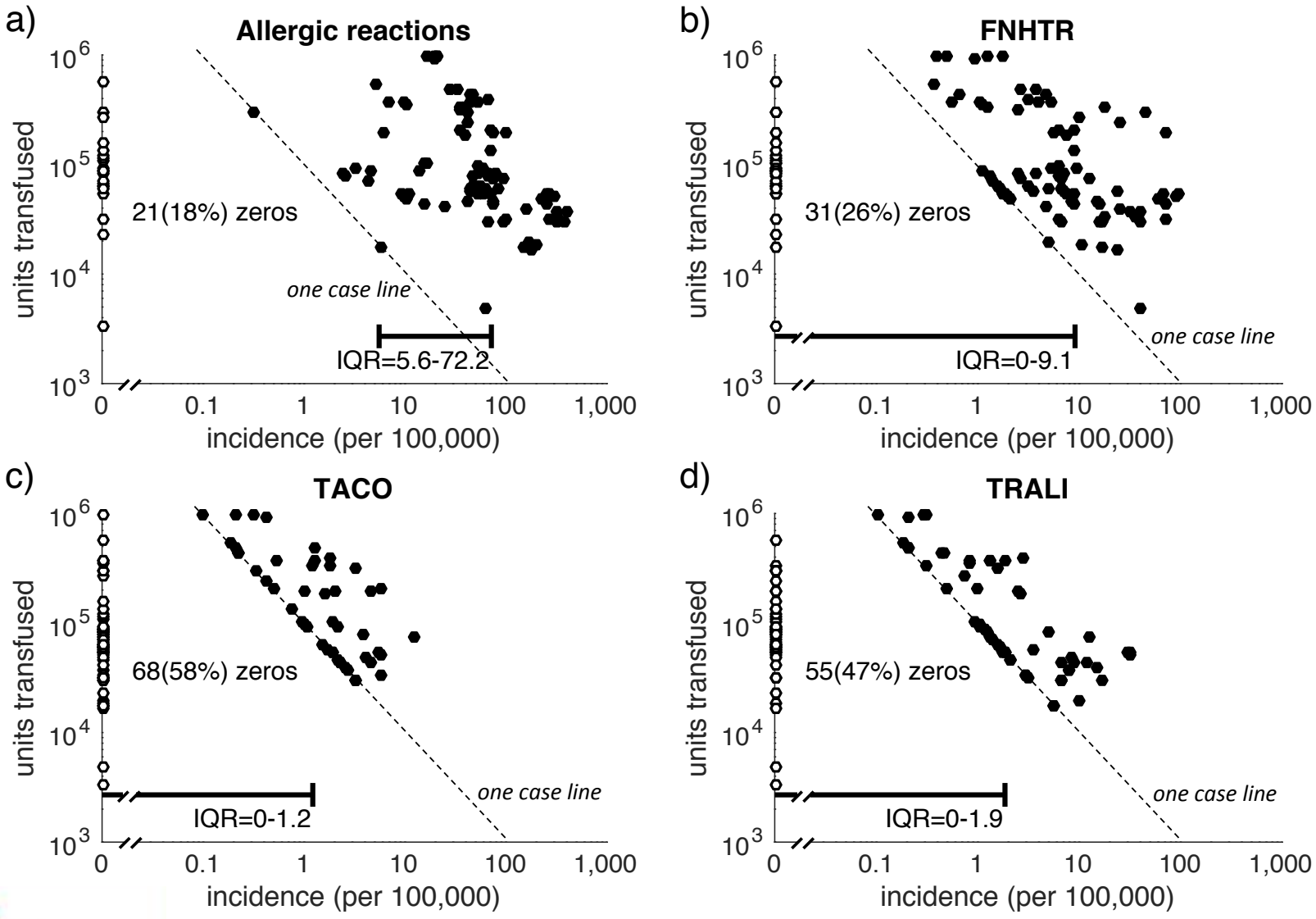
ISTARE patient data



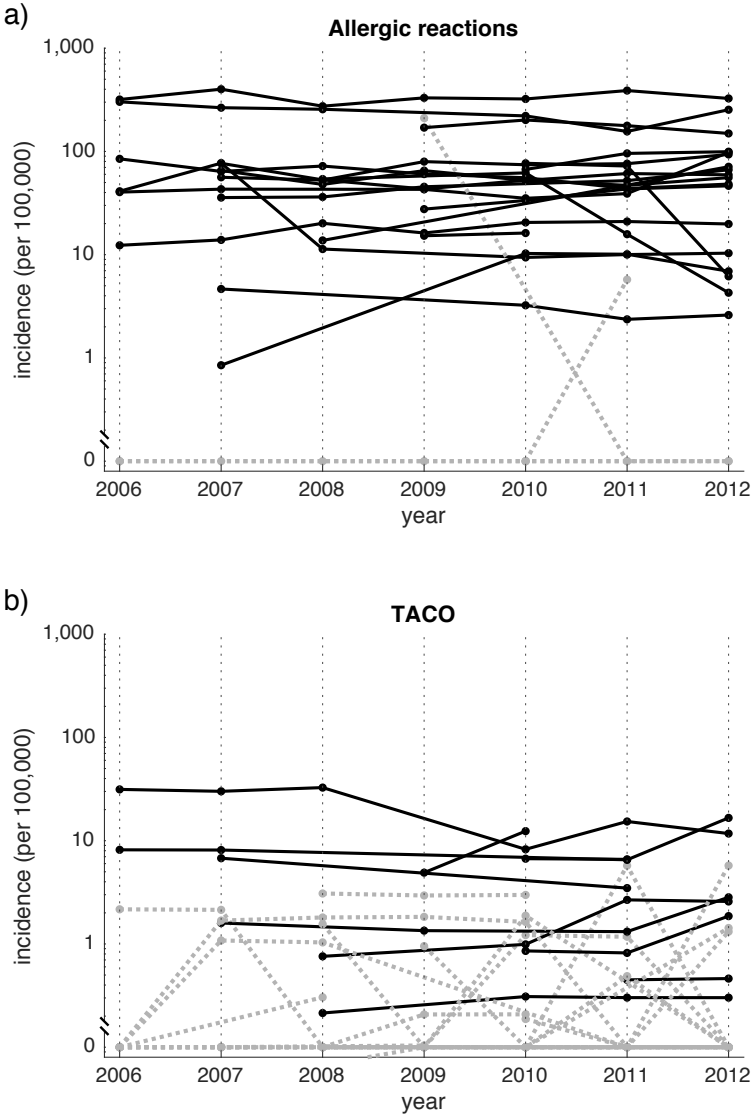
Plasma transfusion reactions

Transfusion reaction:	Reported cases: n	%	incidence (per 10^5)
Allergic reaction:	6412	76.49%	27.62
Febrile Non-hemolytic Transfusion Reaction (FNHTR):	1058	12.62%	4.56
Transfusion Associated Circulatory overload (TACO):	180	2.15%	0.78
Transfusion associated dyspnea (TAD):	159	1.90%	0.69
Other transfusion reaction:	159	1.90%	0.69
Unclassifiable complication of transfusion (UCT):	121	1.44%	0.52
Transfusion related acute lung injury (TRALI):	109	1.30%	0.47
Hypotensive reaction:	102	1.22%	0.44
Delayed Serologic Transfusion Reactions (DSTR):	24	0.29%	0.10
Transfusion transmitted viral infection – HBV:	19	0.23%	0.08
Acute Hemolytic Transfusion Reaction (AHTR):	17	0.20%	0.07
Delayed Hemolytic Transfusion Reaction (DHTR):	11	0.13%	0.05
Transfusion transmitted viral infection - Other:	4	0.05%	0.02
Transfusion transmitted viral infection – HCV:	3	0.04%	0.01
Transfusion transmitted viral infection – HIV:	2	0.02%	0.01
Transfusion transmitted bacterial infection:	2	0.02%	0.01
Hyperkalemia:	1	0.01%	0.004
Total:	**8383**		**36.12**

Plasma transfusion reactions (incidences)



Plasma transfusion reactions (incidences)

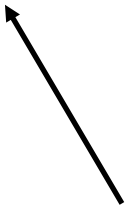


Plasma transfusion reactions (incidences)

	Allergic reactions	FNHTR	TRALI	TACO
Main analysis				
Odds ratios - countries using *either* untreated WBD *or* untreated Apheresis plasma (19):				
untreated WBD:	ref	ref	ref	ref
untreated apheresis:	**1.29 (1.19 - 1.40)**	0.78 (0.58 - 1.05)	1.00 (0.50 - 1.98)	1.11 (0.66 - 1.87)
Odds ratios - countries using *either* untreated WBD *or* SD plasma (20):				
untreated WBD:	ref	ref	ref	-
SD plasma:	**0.27 (0.21 - 0.36)**	**0.29 (0.15 - 0.54)**	0.21 (0.02 - 1.92)	-
Odds ratios - countries using *either* untreated apheresis *or* SD plasma (20):				
untreated apheresis	ref	ref	ref	-
SD plasma:	**0.18 (0.14 - 0.24)**	**0.30 (0.14 - 0.65)**	0.11 (0.01 - 1.00)	-

ISTARE analysis conclusions:

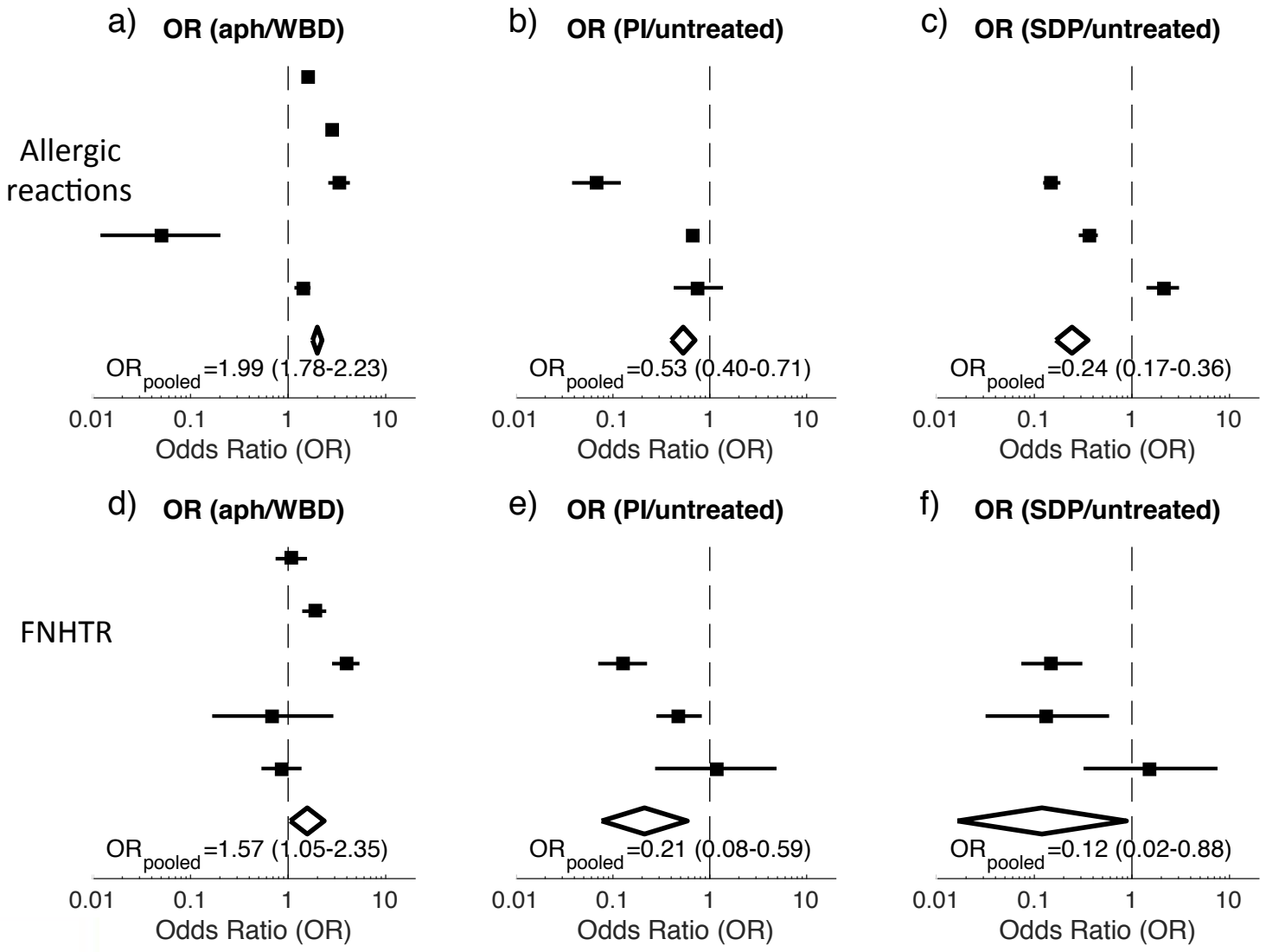
- SD plasma associated with fewer allergic reactions, FNHTR than FFP (both apheresis and whole blood derived)
- Pathogen inactivated plasma (all types together) associated with fewer allergic reactions, FNHTR than FFP (both apheresis and whole blood derived)
- Apheresis plasma associated with more allergic reactions, FNHTR than whole blood derived plasma



Not previously observed

We ran a sensitivity analysis to check these conclusions

Plasma transfusion reactions (sensitivity analysis – only dual users)



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Discussion points:

- Apheresis derived plasma safer than whole blood derived plasma?