Haemovigilance Report

2018

Danish **R**egistry of **T**ransfusion Risks (DART)

DSKI
Danish Society for Clinical Immunology

Member of the Haemovigilance Committee

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Abbreviations

AHTR	Acute hemolytic transfusion reaction
AMI	Acute myocardial infaRBCtion
Anti-HLA	Antibodies against HLA (human leucocyte antigen)
Anti-HNA	Antibodies against HNA (human neutrophil antigen)
APP	Approximately
AR	Allergic reaction
BNP	Brain natriuretic peptide
CF	confer
CPAP	Continuous positive airway pressure
DART	Danish Registry of Transfusion Risks
DAT	Direct antiglobulin test
DHA	Danish Health Authority
DHTR	Delayed hemolytic transfusion reaction
DTSR	Delayed serologic reaction
ECHO	Echocardiography
EF	Ejection fraction
FNHTR	Febrile non hemolytic transfusion reaction
Hb	Hemoglobin
IBCT	Incorrect blood component transfused
IHD	Ischemic heart disease
IHN	International Haemovigilance Network
ISBT	International Society of Blood Transfusion
LDH	Lactate dehydrogenase
LVEF	Left ventricular ejection fraction
MAP	Mean arterial pressure
PTP	Post transfusion purpura
RBC	Red blood cells

TACO	Transfusion-associated circulatory overload
TAD	Transfusion-associated dyspnea
Ta-GVHD	Transfusion-associated graft-versus-host disease
TR	Transfusion reaction
TRALI	Transfusion-related acute lung injury
TTI	Transfusion-transmitted infection
UTI	Urinary tract infection

Introduction

DART is the Danish National Haemovigilance Committee. Since 1999, the committee has received and analyzed data for serious adverse events and reactions associated with transfusion of blood components.

DART is a member of the Nordic Haemovigilance Group and IHN. DART reports the Danish annual results of adverse events and reactions associated with transfusion of blood components to IHNs haemovigilance Database (ISTARE).

In 2018, 9.5 adverse events and reactions per 100,000 transfused blood components were reported to DART. The number for the recent years, (2017: 5.5; 2016: 7.1; 2015: 8.0 and 2014: 5.6/100,000 transfused blood components).

In tables representing 2018 data, only the adverse events and reactions reported in 2018 are mentioned, which means, hypotensive TR, TAD, Ta-GVHD and PTP are excluded.

As a standard procedure, since 2014, DART has validated the submitted reports according to ISBTs definitions of adverse event and reaction and imputability. The validation resulted in exclusion of three reported adverse reactions (one DSTR, which is not represented in the tables; and two reports, did not fulfil the definitions of adverse event and reaction according the ISBT definition).

The formula for reporting serious adverse events and reactions associated with transfusion of blood components to DART, and the guide to DART reporting are to find on the homepage of Danish Society of Clinical Immunology (DSKI).

As in the recent years (2014-2017) the transfused platelets and total transfused blood components are stated as number of components, (in 2013 and previous annual reports the

number of transfused platelets and thereby total transfused components are stated as single units).

Definitions

The terms for blood components RBC, platelets and plasma are defined by IHN.
Adverse events and reactions is used as a headline for:
An adverse event
An incident
An adverse reaction

The type of adverse events and reactions are defined by ISBT as in DARTs "Vejledning til DART indberetning" [Guide to DART reporting].
Severity (grade 1 – 4) and imputability (five grades) of adverse events and reactions are categorized according to ISBTs standards.

Specifications for blood components

In Denmark blood components are produced in respect to "Guide to the preparation, use and quality assurance of blood components", EDQM current version.
RBC: Red Blood Cells, Leucocyte depleted in Additive Solution derived from whole blood donation. This include a very few number of RBC washed and – cryopreserved.
Platelets: Platelets, recovered, pooled, leucocyte-depleted, in additive solution derived from whole blood AND platelets, apheresis, leucocyte-depleted, in additive solution obtained by apheresis of a single donor.
Four regions used four buffy coats/pool platelets, one region used 6 buffycoats/two pool platelets.
One region used pathogen reduction (Intercept®) in both type of platelet products until medio 2018.
Plasma: Plasma, fresh frozen prepared either from whole blood or from plasma obtained by apheresis of a single donor and frozen within 24 hours. Liquid plasma as the above mentioned plasma but never frozen (shorter shelf life).

Blood Components Transfused

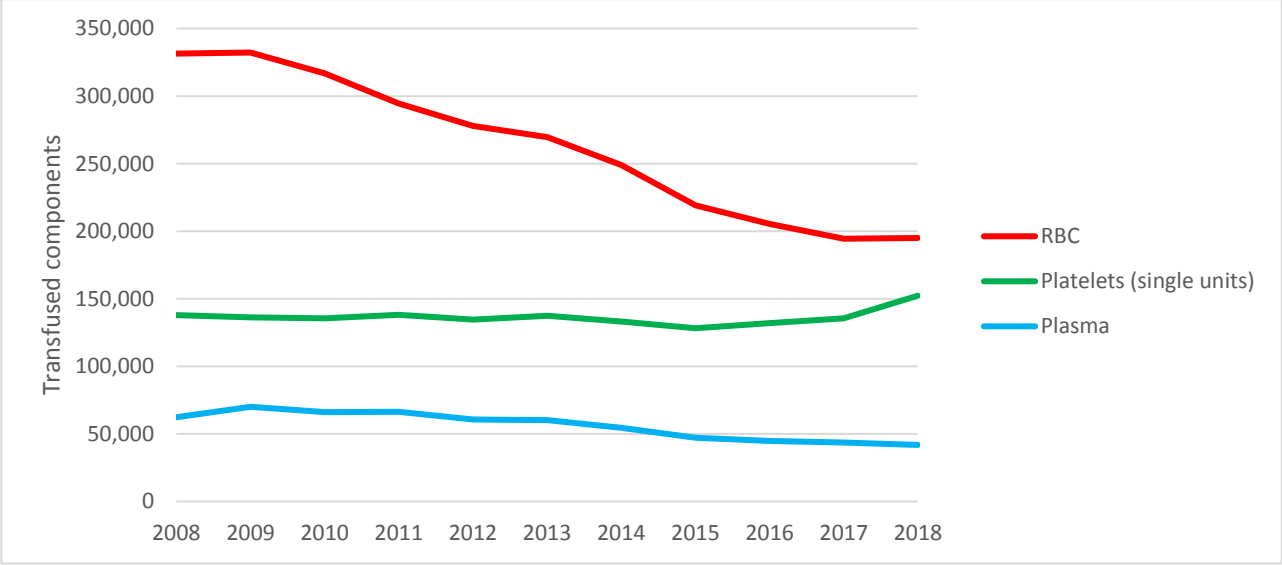
2018

Data of transfused blood components have been reported from the five regions.

Region	RBC	Platelets (pool)	Platelets (apheresis)	Plasma (whole blood)	Plasma (apheresis)	Total
Capital Region of Denmark	67,118	17,046	327	15,887	2,847*	103,225
Region Zealand	24,932	2,336	556	1,831	1,142	30,797
Region of Southern Denmark	40,960	7,433	513	6,784	1,151	56,841
Central Denmark Region	42,491	6,566	197	7,851	730*	57,835
North Denmark Region	19,510	2,747	355	3,656*	0	26,268
Total	**195,011**	**36,128**	**1,948**	**36,009**	**5,870**	**274,966**

* plasma fresh frozen and liquid plasma

2008-2018



Source: 2008-2013 Danish Health Authority SST, 2014 - 2018 The Regions.

The number of transfused platelets and plasma is stable through the last ten years.
For the first time in ten years the number of transfused RBC has increased (546 components from 2017-2018). However, RBC transfusion/1,000 inhabitants is stable (2018: 33.6 and 2017: 33.8). Increase in population (57,246 persons) and age-related demographic development can explain the absolute rise in RBC transfusion. (Source: Statistics Denmark).

Adverse events and reactions

2018 - Regionally

Region	Number	Number/100,000 transfused components
Capital Region of Denmark	8	7.8
Region Zealand	2	6.5
Region of Southern Denmark	2	3.5
Central Denmark Region	7	12.1
North Denmark Region	7	26.6
Total	26	9.5

The North Denmark region has - as the Central Denmark region has had since 2015 - a higher ratio of adverse events and reactions/100,000 transfused components than all other regions in Denmark.
The reason is most likely a general increased attendance on acknowledgement of adverse events and reactions and certainly execution by reporting to DART.

2018

Adverse events and reactions	Number	Number/100,000 transfused components
IBCT (wrong patient)	1	0.4
IBCT (wrong component)	2	0.7
AHTR	1	0.4
DHTR	2	0.7
AR	4	1.5
TRALI	1	0.4
TACO	8	2.9
TTI	1	0.4
FNHTR	6	2.2
Total	26	9.5

Cumulated table of reports

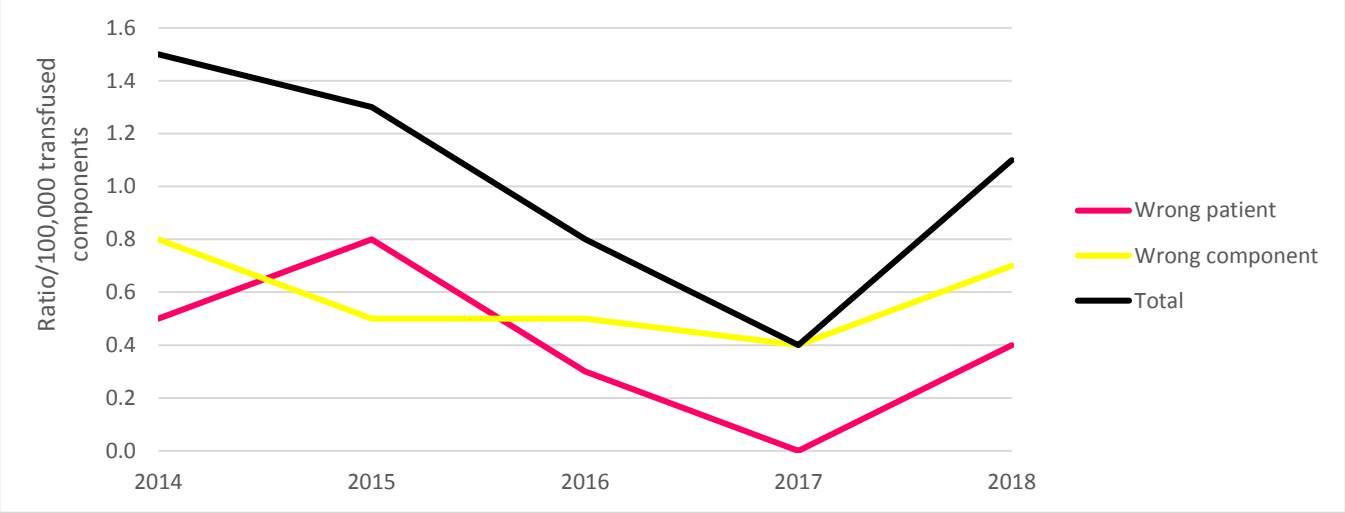
2014-2018

adverse events and reactions	Number/100,000 transfused components (absolute)					
	2014	2015	2016	2017	2018	2014-2018
Wrong patient	0.5 (2)	1.0 (3)	0.4 (1)	0	0.4 (1)	0.5
Wrong component	0.8 (3)	0.7 (2)	0.7 (2)	0.4 (1)	0.7 (2)	0.7
AHTR	0.3 (1)	0.3 (1)	0.4 (1)	0	0.4(1)	0.3
DHTR	0.5 (2)	2.0 (6)	1.4 (4)	0	0.7 (2)	1
AR	0.8 (3)	1.0 (3)	2.1 (6)	1.1 (3)	1.5 (4)	1.3
TRALI	0.5 (2)	0.3 (1)	1.1 (3)	1.1 (3)	0.4 (1)	0.7
TACO	0.5 (2)	0.3 (1)	0.4 (1)	1.5 (4)	2.9 (8)	1.2
TTI	0	0.3 (1)	0	0	0	0.1
FNHTR	0	0.3 (1)	0.7 (2)	1.1 (3)	2.3 (6)	0.1
Hypotensive TR	0	0.7 (2)	0	0	0	0.1
TAD	0	0.3 (1)	0	0	0	0.1
UCT	1.1 (4)	0.7 (2)	0	1.1 (1)	0	0.5
Total	5.6 (19)	8.0 (24)	7.1 (20)	5.5 (15)	9.5 (26)	7.1

Adverse events and reactions listed by type

Incorrect blood component transfused (IBCT) - wrong patient/wrong component

Year	Number/100,000 transfused components (absolute)		
	Wrong patient	Wrong component	Total
2014	0.5 (2)	0.8 (3)	1.5 (5)
2015	0.8 (3)	0.5 (2)	1.3 (5)
2016	0.3 (1)	0.5 (2)	0.8 (3)
2017	0	0.4 (1)	0.4 (1)
2018	0.4 (1)	0.7 (2)	1.1 (3)



The fraction of IBCT in 2018 is 12% of all reported adverse events and reactions.

Region	Fraction of transfused blood components validated electronically (%)
	2018
Capital Region of Denmark	0
Region Zealand	71
Region of Southern Denmark	31
Central Denmark Region	94
North Denmark Region	0
Mean	39

Acute hemolytic transfusion reaction (AHTR) and delayed hemolytic transfusion reaction (DHTR)

Erythrocyte antibodies detected in blood from patients with AHTR and DHTR in 2014-2018

Year	Number/100,000 transfused components (absolute)	
	AHTR	DHTR
2014	0.3 (1)	0.5 (2)
2015	0.3 (1)	2 (6)
2016	0.4 (1)	1.4 (4)
2017	0	0
2018	1	0.7 (2)

Specification of erythrocyte antibodies detected in blood from patients with AHTR and DHTR in the period 2001-2018.

Antibody	Jk^a	S	C	E	K	Jk^b	Fy^a	c	e	Fy^b	Lu^a	Bg	B	Cw	Wr^a	Other*
AHTR	3		2		2	2	1	1				1	1		3	3
DHTR	7	2	2	11	4	5	5	7	1	2	1			1		

- Two reactions the detected antibodies had unknown specificity, and one reaction where the only antibody identified was cold agglutinin.

Allergic reaction (AR)

AR refer to grade 2-4 allergic reactions and the clinical presentation is an anaphylactic reaction cf. ISBT's definition.

Year	Number/100,000 components transfused (absolute)			
	RC	Platelets	Plasma	Total
2014	0	3.0 (1)	3.7(2)	0.8(3)
2015	0	3.1(1)	4.2(2)	1.0(3)
2016	0.5(1)	3.0(1)	8.9(4)	2.1(6)
2017	0	3.0(1)	4.6(2)	1.1(3)
2018	0	2.6(1)	2.4(1)	1.5(4)*

* In total four AR were reported in 2018. One observed in relation to transfusion of platelets, one in relation to transfusion of plasma and two in relation to transfusion of >1 type of blood component (transfusion packages 4:4:1/5:5:2 RBC:Plasma:Platelets). The two AR observed in relation to transfusion of >1 type of blood component only figure in the column "Total". In prior haemovigilance reports AR observed in relation to >1 type of blood component were allocated to a random blood component.

In the recent haemovigilance reports, the AR has been allocated to the blood component most probable considering volume and type of blood components given.

Respiratory adverse transfusion reaction

Similarities in symptomatology has inspired haemovigilance organizations (ISBT) to use a collective header for TRALI, TACO and TAD. As the reactions can be difficult to separate in the clinical ward it makes sense to regard them as close related.

Transfusion-related acute lung injury (TRALI)

Year	Number/100,000 components transfused (absolute)			
	RBC	Platelets	Plasma	Total
2014	0.4(1)	0	1.8(1)	0.5
2015	0.5(1)	0	0	0.3
2016	1.0(2)	0	2.2(1)	1.1
2017	0.5(1)	3(1)	2.3(1)	1.1
2018	0.5(1)	0	0	0.4

Transfusion-associated circulatory overload (TACO)

Year	Number/100,000 components transfused (absolute)			
	RBC	Platelets	Plasma	Total
2014	0.8(2)	0	0	0.5
2015	0.5(1)	0	0	0.3
2016	0.5(1)	0	0	0.3
2017	2.1(4)	0	0	1.5
2018	2.6(5)	5.3(2)	2.4(1)	2.9(8)

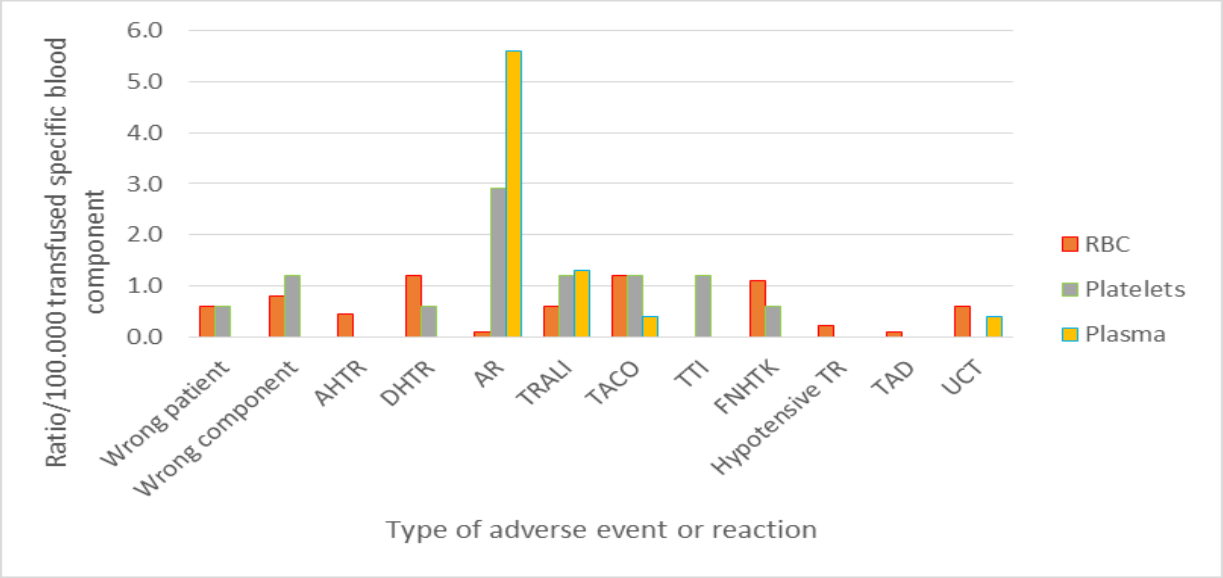
Adverse events and reactions in relation to blood component

2018

Adverse events and reactions	Number/100,000 components transfused (absolute)			
	RBC	Platelets	Plasma	Total
IBCT (wrong patient)	0.5(1)	0	0	0.4(1)
IBCT (wrong component)	0.5(1)	2.6(1)	0	0.4(1)
AHTR	0.5(1)	0	0	0.4(1)
DHTR	1.0(2)	0	0	0.7(2)
AR*	0	2.6(1)	2.4(1)	1.5(4)
TRALI	0.5(1)	0	0	0.4(1)
TACO	2.6(5)	5.3(2)	2.4(1)	2.9(8)
FNHTR	3.1(6)	0	0	2.2(6)
TTI	0	2.6(1)	0	0.4(1)
Total	9.2(18)	13.1(5)	9.6(4)	9.5(26)

* Cf. comment table "AR" p. 11.

2014-2018



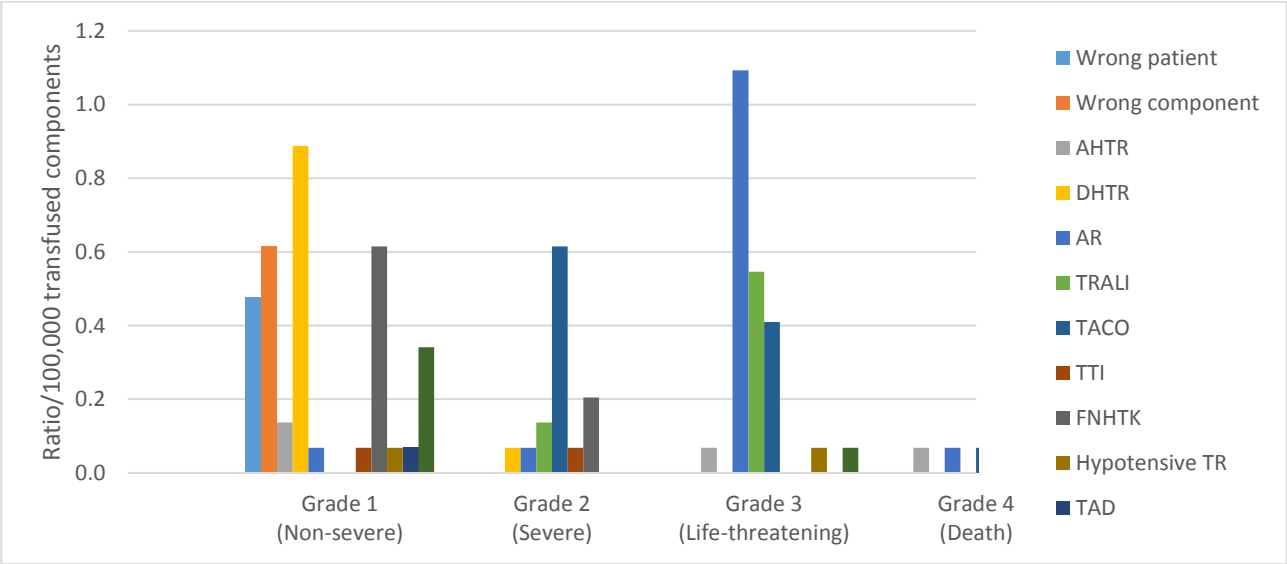
Severity

2018

Adverse event and reactions	Grade 1 (Non-severe)	Grade 2 (Severe)	Grade 3 (Life-threatening)	Grade 4 (Death)	Total
IBCT (wrong patient)	1	0	0	0	1
IBCT (wrong component)	2	0	0	0	2
AHTR	0	0	1	0	1
DHTR	1	1	0	0	2
AR	0	1	2	1	4
TRALI	0	1	0	0	1
TACO	0	7	1	0	8
FNHTR	4	2	0	0	6
TTI	0	1	0	0	1
Total	8	13	3	1	26
Ratio/100.000 components	2.9	4.7	1.1	0.4	9.6

The AR causing death is described as case number nine.

2014-2018



Cases

Incorrect blood component transfused (IBCT) – wrong patient

1) **Transfused component: RBC 0 RhD POS**
   Location: Capital Region of Denmark
   Severity: 1
   Recipient: Male patient (A RhD POS) was transfused with component released from the blood bank to a female patient with valid computer crossmatch (as ordered from the department). When the component arrived at the department, the nurse did not read the full delivery note (data of the female patient) but only the blood type. As the component was 0 RhD POS and the patient A RhD POS she contacted the blood bank and asked in general terms if it is allowed to transfuse 0 RhD POS RBC to an A RhD POS patients. The blood bank confirmed. The male patient was given the transfusion without bedside control of the patient identity with the delivery note.

Incorrect blood component transfused (IBCT) – wrong component

2) **Transfused component: RBC 0 RhD POS**
   Location: Region of Southern Denmark
   Severity: 1
   Recipient: patient (A RhD POS) with acute need of RBC transfusion before blood type and computer crossmatch. The recipient was transfused with a component, which was thought to be "universal RBC", picked up at the local blood bank fridge. The bedside control was missed out and after transfusion began the staff discovered that the component was dedicated to another patient (delivery note).

3) **Transfused component: Platelets NOT irradiated**
   Location: Region of Southern Denmark
   Severity: 1
   Recipient: patient with demand for irradiated blood components (diagnosis unknown).
   By mistake the component was NOT irradiated, as the standard operation procedure prescribes for the certain diagnosis. In both the blood bank and the department, the demand for irradiated blood components was missed.

Acute hemolytic transfusion reaction (AHTR)

4) Age: 63 year old

Gender: male

Transfused components: RBC

Location: Central Denmark Region

Severity: 3

Imputability: definite

Recipient admitted to emergency hospital due to anaemia. Three weeks earlier he had been transfused with 8 RBCs due to GI-bleeding. Known with anti-K and all 8 RBCs were crossmatch compatible. Up until admission, he had symptoms of fatigue, dyspnoea, dark urine, and yellow skin colour. Laboratory results at admission, Hb 2.9 mmol/L, bilirubin 156 umol/L, haptoglobin and LDH unmeasurable, free haemoglobin 17 umol/L. Two RBC were ordered, but crossmatchs were positive. Due to the critical condition, the recipient was transfused with two 0 RhD neg K- RBC without pre-transfusion crossmatching. Anti- Fy^a and anti-C were discovered later. All 8 RBCs transfused 3 weeks earlier were Fy^a and/or C antigen positive, indicating a delayed haemolytic transfusion reaction. One of the RBC transfused on urgent demand was Fy^a positive. DAT was positive. High dosis prednisolone treatment was initiated. Afterwards, the recipient developed massive acute haemolysis, free haemoglobin increased to 297 umol/L. After 30 hours, the clinical condition worsened, and he was sent to the intensive care unit. Therapeutic plasma exchange (TPE) was initiated and continued daily or every second day. Up to 9 crossmatch compatible RBCs were transfused daily, but despite this, Hb was only 4 mmol/l. Day 10, after 8 TPE, rituximab treatment was initiated. His condition was slowly stabilizing, and he received his last RBC transfusion on day 7, on day 14 he received his last TPE. Laboratory results were stable. Rituximab was administered once a week for 4 weeks, and prednisolone was slowly reduced and finally stopped after 4 weeks. The patient recovered completely. The case is consistent with a hyperhemolysis syndrome.

Delayed hemolytic transfusion reaction (DHTR)

5) Age: 90 year old

Gender: male

Transfused components: RBC

Location: Central Denmark Region

Severity: 2

Imputability: definite

Recipient (melena and Hb 3.9 mmol/l) transfused with 15 RBC over a period of 10 days based on valid computer crossmatch. By the last transfusion (day 10) the patient developed a rise in temperature (37.4-

39.0°C) and chills. The blood banks diagnosed an anti-C (four of the 15 RBC components were C-positive). During the following days a decrease in Hb (6.3-4.0 mmol/l), undetectable haptoglobin, positive DAT and a rise in LDH was observed.

6) **Age: 88 year old**
   Gender: female
   Transfused components: RBC
   Location: North Denmark Region
   Severity: 2
   Imputability: definite
   Recipient transfused with RBC 7 days prior, required more RBC (elective). The computer crossmatch was positive and an anti-Jka was diagnosed (the RBC transfused 7 days prior was Jka-positive).
   At the same time as the positive computer crossmatch, a decrease in Hb (4.1 mmol/l), haptoglobin<0.1 g/l, a rise in bilirubin (16 mikg/l) and LDH (value not stated) and a positive DAT was observed.

Allergic reaction (AR)

7) **Age: 33 year old**
   Gender: male
   Transfused components: RBC, platelets and plasma
   Location: Capital Region of Denmark
   Severity: 3
   Imputability: probable
   Recipient admitted because of trauma and transfused with several blood components (RBC, platelets and plasma) peroperatively. During transfusion, he developed hypotension (systolic decrease 125-45 mmHg) and few minutes later a universal urticarial rash.
   Treatment: adrenaline, antihistamine and steroid was effective.
   Delta tryptase: not stated; anti-IgA NEG.

8) **Age: 63 year old**
   Gender: male
   Transfused components: plasma
   Location: Capital Region of Denmark
   Severity: 3

Imputability: probable

During transfusion (started two hours earlier) the recipient developed a universal urticarial rash and hypotension (MAP decrease 80-70 mmHg).

Treatment: adrenaline (repeated), antihistamine and steroid were effective.

Delta tryptase: not stated, anti-IgA NEG.

9) **Age: 54 year old**

Gender: male

Transfused components: RBC, platelets and plasma

Location: Central Region Denmark

Severity: 4

Imputability: possible

Recipient admitted for operation (femur fracture). Operation was complicated because of osteosynthetic material installed years before. Known with alcohol abuse and chronic hepatitis C infection. Years before this admission acute pancreatitis and drug addiction.

30 minutes after transfusion, he developed a universal urticarial rash, angioedema and hypotension (systolic decrease to 45 mmHg, start value not stated). In the hours following the reaction, he developed multi organ failure due to hypoperfusion (clinical assessment), because of the long term hypotension. All treatment was stopped and the patient died 12 hours later.

Treatment: adrenaline (repeated, followed by continuous infusion)), antihistamine, steroid and NaCl gradually (hours) stabilized, but never normalized blood pressure.

Delta tryptase: not stated, IgA: 1.72 g/l (normal).

10) **Age: 20 year old**

Gender: male

Transfused components: platelets irradiated

Location: North Denmark Region

Severity: 2

Imputability: probable

Recipient with hematological malignancy. 30 minutes after transfusion began; he developed confluent universal urticarial rash, forced respiratory work, expiratory rhonchi and desaturation.

Treatment: antihistamine, steroid and salbutamol was effective

Delta tryptase: not stated, IgA: 0.26 g/l (deficient).

Transfusion-related acute lung injury (TRALI)

11) Age: 69 year old

Gender: male

Transfused components: RBC

Location: North Denmark Region

Severity: 2

Imputability: probable

One hour after leaving the hospital where he had a transfusion, the recipient experienced dizziness, respiratory distress and coughing. At return to the hospital, he desaturated to 83 % (saturation usually normal) and became cyanotic. Blood pressure was stable.

Treatment: oxygen, diuretics and antibiotics with some effect.

X-ray chest: bilateral infiltrations.

Anti-HLA I and II: negative for both donor and patient

Anti-HNA: negative for donor. In the patients´ serum an anti-HNA-2 antibody was diagnosed. (HNA-2 genotyping not possible).

Crossmatch: positive (patients´ serum and donor leucocytes)

Transfusion-associated circulatory overload (TACO)

12) Age: 87 year old

Gender: female

Transfused components: RBC

Location: Central Region Denmark

Severity: 2

Imputability: probable

Recipient admitted because of iron deficiency anemia (Hb 3.3 mmol/l) and transfused with two components. No known heart failure. One hour after transfusion, she developed respiratory distress, rasping sounds at expiration and need of CPAP therapy. Tachycardia (89-119/min.). 24 hours later the patient was in habitual state.

Treatment: diuretics (repeated) and nitroglycerine were effective.

X-ray chest: Bilateral infiltrations

ECHO: LVEF 30%

Arteriel gas puncture: lactatacidosis

13) **Age: 44 year old**
Gender: female
Transfused components: RBC (three liters crystalloids)
Location: Capital Region of Denmark
Severity: 2
Imputability: probable
Post-partum uterus atoni and bleeding. No known heart failure. Just finishing the transfusion of 4 RBC (and crystalloids) the patient developed respiratory distress, desaturation (92% on oxygen therapy), hypertension (220/130 mm Hg, initially normal) and tachycardia (148/min.). No signs of peripheral edema or positive fluid balance.
Treatment: diuretics was effective.
X-ray chest: Bilateral infiltrations
Arteriel gas puncture: metabolic acidosis

14) **Age: 81 year old**
Gender: male
Transfused components: plasma
Location: Central Region Denmark
Severity: 2
Imputability: probable
Known heart failure and IHD. During transfusion, he developed severe dyspnea, tachycardia (values not stated), bronchospasm, desaturation and need of oxygen therapy. Blood pressure rose (100/50 to 167/65 mm Hg). BNP was not measured.
Treatment: diuretics had some effect.
X-ray chest: Bilateral infiltrations

15) **Age: 91 year old**
Gender: male
Transfused components: RBC
Location: Central Denmark Region
Severity: 2
Imputability: probable
Recipient admitted because of hematuria and UTI. Known with reduced EF (values not stated) after AMI. Two hours after transfusion with two units of red cells (and crystalloids), he developed respiratory distress with desaturation and rise in blood pressure (180-270 mmHg systolic). No tachycardia was observed (preexisting treatment with beta-blockers).

No signs of positive fluid balance.

Treatment: diuretics was effective.

X-ray chest: Bilateral infiltrations

16) **Age: 79 year old**

Gender: female

Transfused components: RBC

Location: Region Zealand

Severity: 2

Imputability: possible

Recipient was transfused with three components. No known heart failure. At the end of transfusion, she developed severe respiratory distress, desaturation and need of oxygen therapy. No tachycardia or hypertension. No signs of peripheral edema.

Treatment: diuretics was effective.

X-ray chest: none

17) **Age: 66 year old**

Gender: female

Transfused components: Platelets

Location: Region Zealand

Severity: 3

Imputability: probable

Recipient with hematological malignancy. No known heart failure. Fifteen minutes after start of transfusion, she developed worsening of respiratory distress, hypertension (220/110 mmHg) and tachycardia (130/min.)

Treatment: diuretics, nitroglycerine and morphine were effective.

X-ray chest: not done

ECHO: not done

BNP: not done

18) **Age: 77 year old**

Gender: male

Transfused components: RBC (and crystalloids)

Location: Central Region Denmark

Severity: 2

Imputability: probable

Recipient known with heart failure. During transfusion with four components and crystalloids, he developed severe respiratory distress, desaturation to 77% (initially 100%), need for respirator, hypotension (93/64-69/56 mmHg) and tachycardia (90-108/min.).
Treatment: diuretics were effective.
X-ray chest: Bilateral infiltrations
ECHO: LVEF 10%

19) **Age: 76 year old**
Gender: female
Transfused components: Platelets
Location: North Denmark Region
Severity: 2
Imputability: probable
Recipient without known heart failure. The platelets was transfused during only 15 minutes, by the end of the transfusion, she developed respiratory distress, desaturation, hypertension (113/60-158/75) and tachycardia (80-106/min.). 12 hours later the patient was in habitual state.
Treatment: diuretics were effective.
X-ray chest: Bilateral infiltrations
Echo: not done

Transfusion-transmitted infection (TTI)

20) **Age: 58 year old**
Gender: female
Transfused components: Platelets
Location: Capital Region of Denmark
Severity: 2
Imputability: probable
Recipient with hematological malignancy. Three hours after transfusion she developed nausea, vomiting, chills, a rise in body temperature (36.3-39.5°) and symptoms of severe sepsis.
Microorganism: Staphylococcus epidermidis was found both in the blood of the patient and in the leftover of the component.

Febrile non-hemolytic transfusion reaction (FNHTR)

21) Age: 76 year old
Gender: male
Transfused components: RBC
Location: Central Region Denmark
Severity: 2
Imputability: possible
Few minutes after transfusion began, he developed a rise in temperature (37.1-40.4°C), increased respiratory frequency (16-24/min.) and chills. Stable blood pressure, no headache or nausea.
Post transfusion serological tests showed correct blood grouping, compatible components and negative DAT.
Treatment: None

22) Age: 63 year old
Gender: male
Transfused components: RBC
Location: Central Region Denmark
Severity: 1
Imputability: possible
Recipient admitted for a femoral amputation. Four hours after transfusion began, he developed a rise in temperature (> 2 °C and > 39 °C (values not stated)). No information about chills, headache or nausea.
Post transfusion serological tests showed correct blood grouping, compatible components and DAT +1 (as before transfusion).
Treatment: None

23) Age: 83 year old
Gender: male
Transfused components: RBC
Location: Central Region Denmark
Severity: 1
Imputability: possible
Recipient admitted because of UTI and in addition diagnosed with anemia. One hour after the transfusion began, he developed a rise in temperature (37.2 – 40.1°C), and a feeling of not being well. Stable blood pressure. Headache, nausea or chills not stated.

Post transfusion serological tests showed correct blood grouping, compatible components and negative DAT.

Treatment: None

24) Age: 76 year old

Gender: male

Transfused components: RBC

Location: North Denmark Region

Severity: 2

Imputability: possible

Recipient admitted with malignant diagnosis and anemia. During transfusion, he developed a rise in temperature >2°C and >39°C (values not stated). Information about headache, nausea or chills not stated.

Post transfusion serological tests showed correct blood grouping, compatible components and negative DAT.

Treatment: None

25) Age: 68 year old

Gender: male

Transfused components: RBC

Location: North Denmark Region

Severity: 2

Imputability: probable

Two hours after transfusion started, he developed a rise in temperature (36.9 to 40.1°C), nausea and didn't feel well. No signs of headache or chills. Ten hours later he was full recovered. .

Post transfusion serological tests showed correct blood grouping, compatible components and negative DAT.

Treatment: paracetamol was effective

26) Age: 77 year old

Gender: female

Transfused components: RBC

Location: North Denmark Region

Severity: 1

Imputability: probable

Recipient with anemia. 90 minutes after transfusion began; she developed a rise in temperature (36.5-39.5°C). No signs of headache, nausea or chills.

Post transfusion serological tests showed correct blood grouping, compatible components and negative DAT.

Treatment: None