Erasmus MC
University Medical Center Rotterdam

Sophia Children's Hospital

Safety First

patient safety management on a surgical PICU

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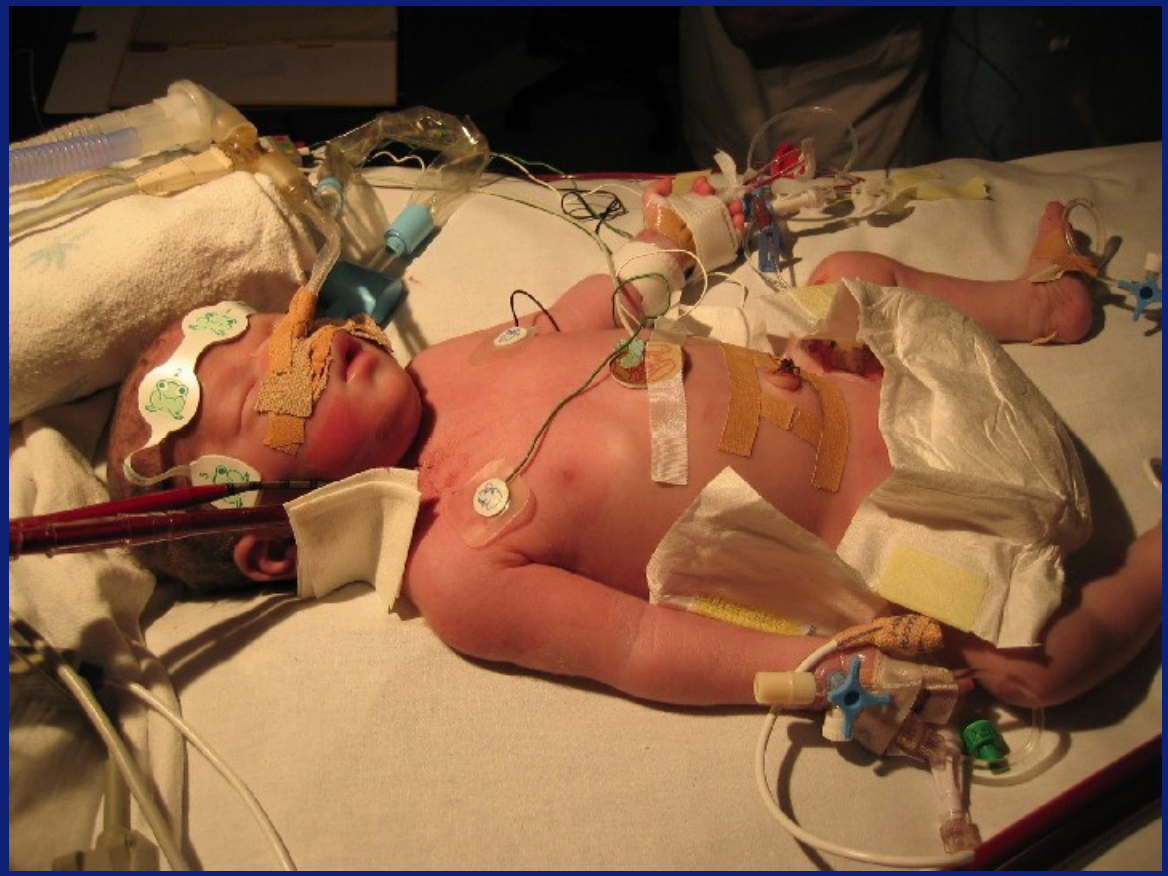
Safety?

sPICU Erasmus MC Sophia



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Patient Safety Management System

- 4 components

- Voluntary incident reporting (Safety First reports)
- Critical Nursing Situation Index (CNSI)
- Complication registration (CR)
- Crew Resource Management (CRM)

How did we start?

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visit Toronto, Report form

Start pilot SF-reports
Pilot complication registration

Protocols updated

CRM-training definitive start CNSI

CNSI-study

end 2003 | **jan-april 2004** | **may 2004** | **july 2004** | **summer 2004** | **okt-nov 2004** | **jan –april 2005** | **winter 2005** | **2006**

Team sessions forming multidisciplinary group

Engage nurse specialist

1e pilot CNSI-score, Contact airforce: CRM

2nd pilot compl. registration

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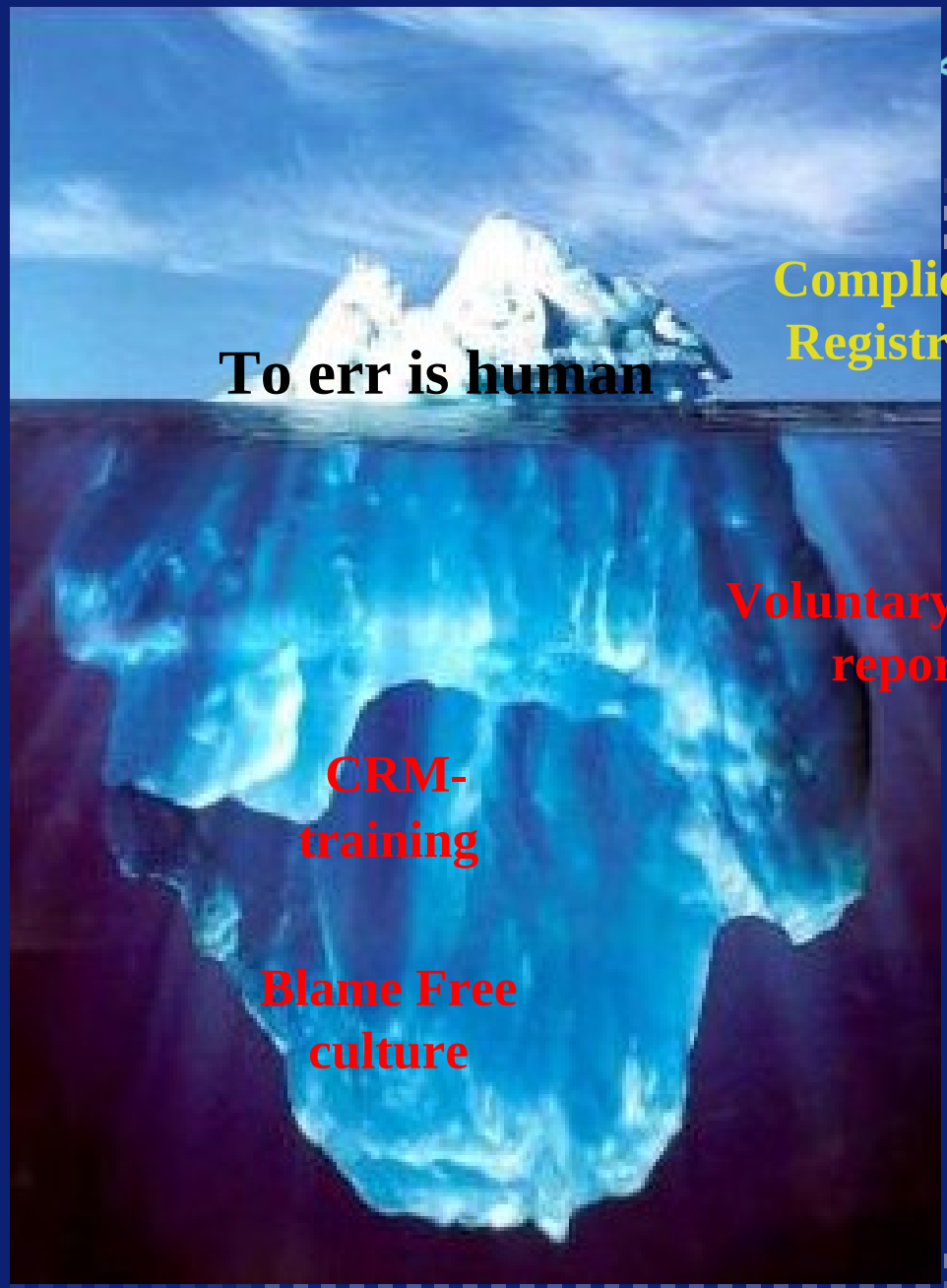

C.N.S.I.: protocol based working

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Complication registration

`Unintended and undesirable event or condition occurring during or after medical treatment, that warrants adjustment of the medical treatment or causes irreparable damage.`

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Complicaton registration

2nd pilot results:

120 complications in 46 patients

25,4% of the patients ≥ 1 complication

8,0 complications / 100 nursing days

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Complicatieregistratie

Top 5 complications:

1. **Medication** — **33 (13%)**
2. **Hypoxia** — **26 (10%) (20 accid extubation)**
3. **Sepsis** — **22 (9%) (18 central line)**
4. **Lineproblem** — **18 (7%)**
5. **Atelectasis** — **16 (6%) (13 mech ventilation)**

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Complication registration

Consequences of complications:

Adjustment treatment	71 %
Prolonged admission	17 %
Other	6 %
Operation	5 %
Readmission	0,4 %
Death	0,4 %

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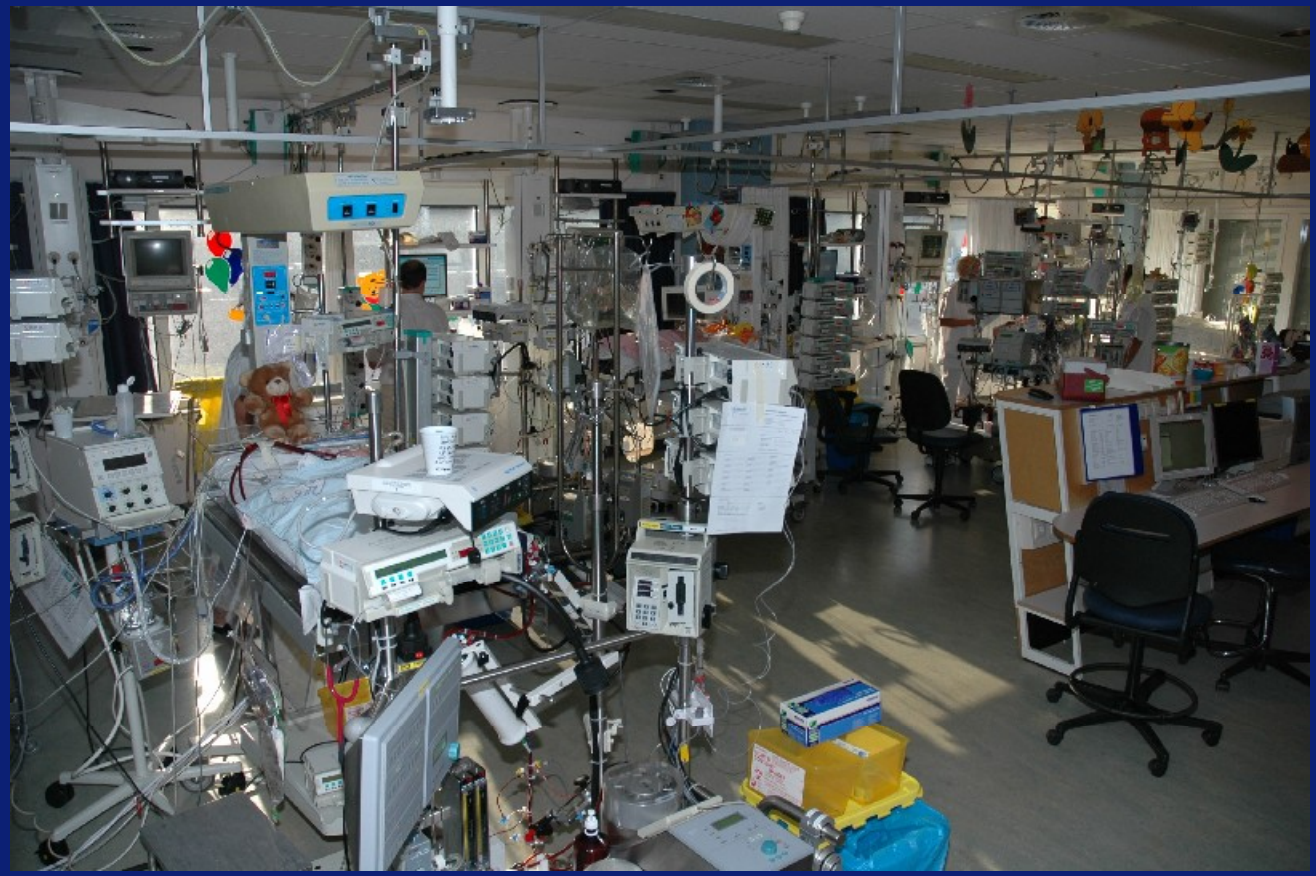
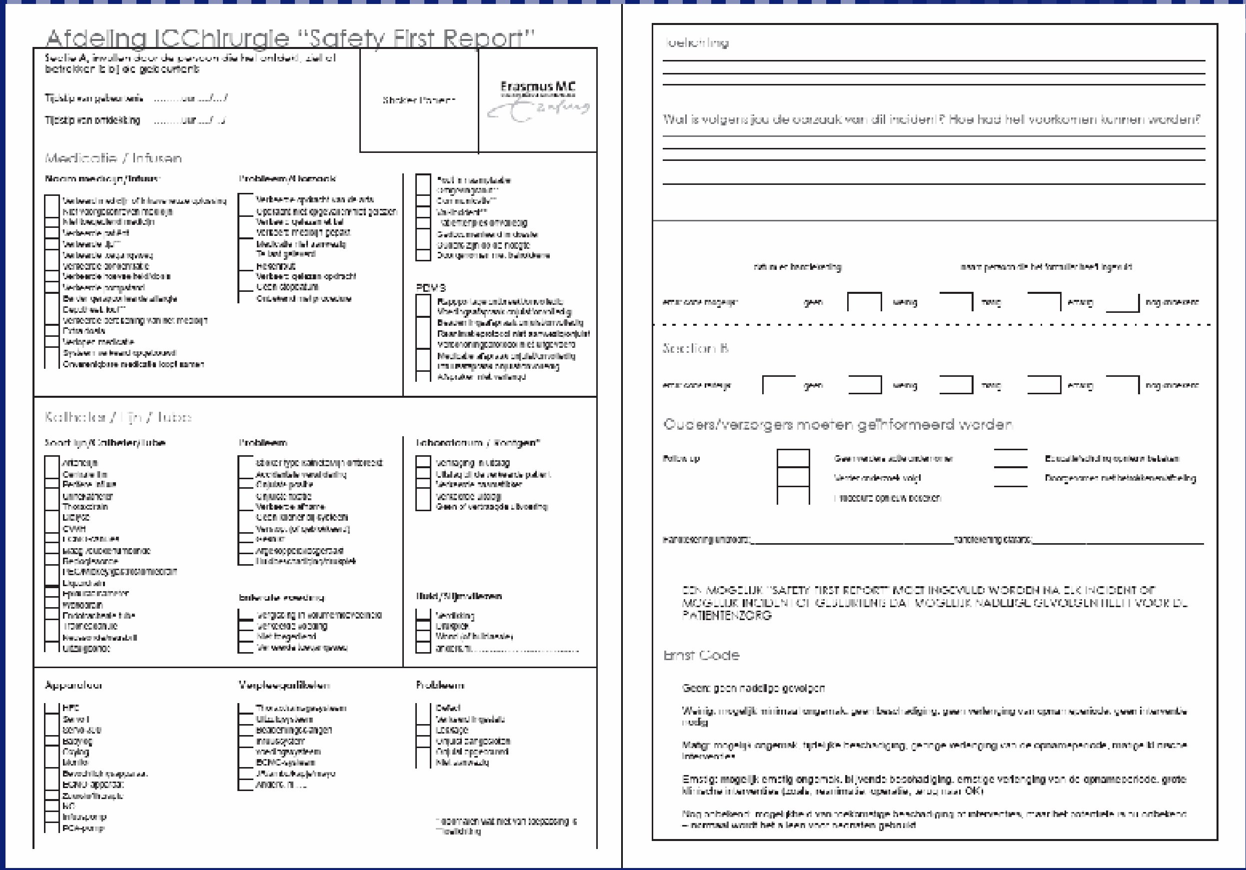
Safety First reports

- start may 2004
- reporting of (near)incidents: “everything that was not as it was supposed to be“
- instead of FONA- reports (50-60/year)
- “blame free” culture essential
- based on the reports develop tailored interventions

Safety First reports



Safety First reports



Afdeling ICChirurgie "Safety First Report"

Sectie A, invullen door de persoon die het incident, ziet of betrokken is bij de gebeurtenis

Tijdstip van gebeurtenis ....uur ..../.../

Tijdstip van ontdekking ....uur ..../.../

Sticker Patient

Medicatie / Infusen

Katheter / Lijn / Tube

Apparatuur

Verpleegartikelen

Probleem

Toelichting

Wat is volgens jou de oorzaak van dit incident? Hoe had het voorkomen kunnen worden?

Section B

Ouders/verzorgers moeten geïnformeerd worden

Follow up

EEN MOGELIJK "SAFETY FIRST REPORT" MOET INGEVULD WORDEN NA ELK INCIDENT OF MOGELIJK INCIDENT OF GEBEURTENIS DAT MOGELIJK NADELIGE GEVOLGEN HEEFT VOOR DE PATIENTENZORG

Ernst Code

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SF reports: top 5

Results 2005: 1600 reports

Top 5 reports:

1. medication	512 x (32%)
2. PDMS	339 x (21%)
3. Cath/lines/tubes	195 x (12%)
4. Equipment	192 x (12%)
5. Environment	144 x (9%)

SF reports: who reports?

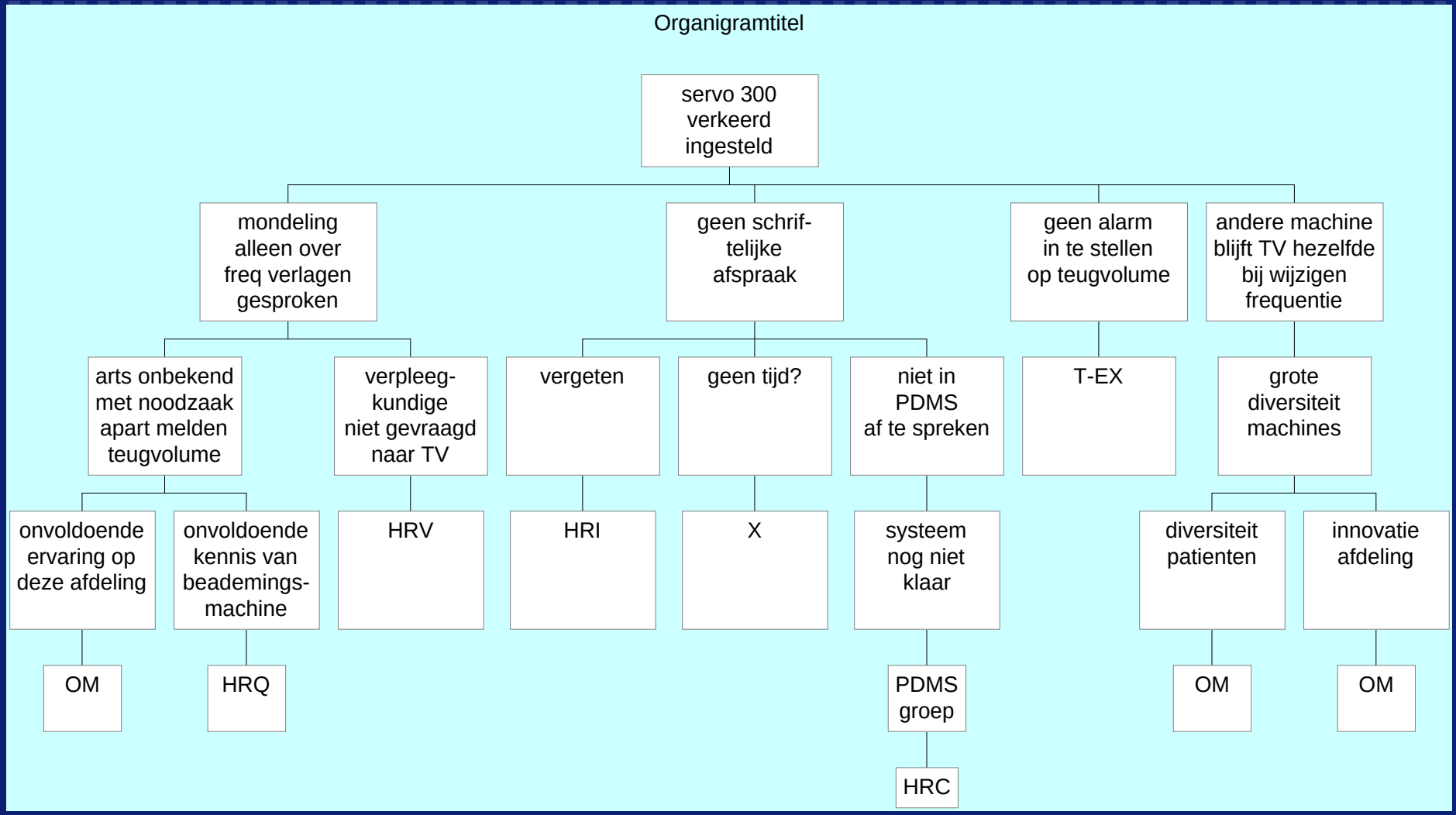
SF reports: analysis, matrix

Ernst van consequentie*

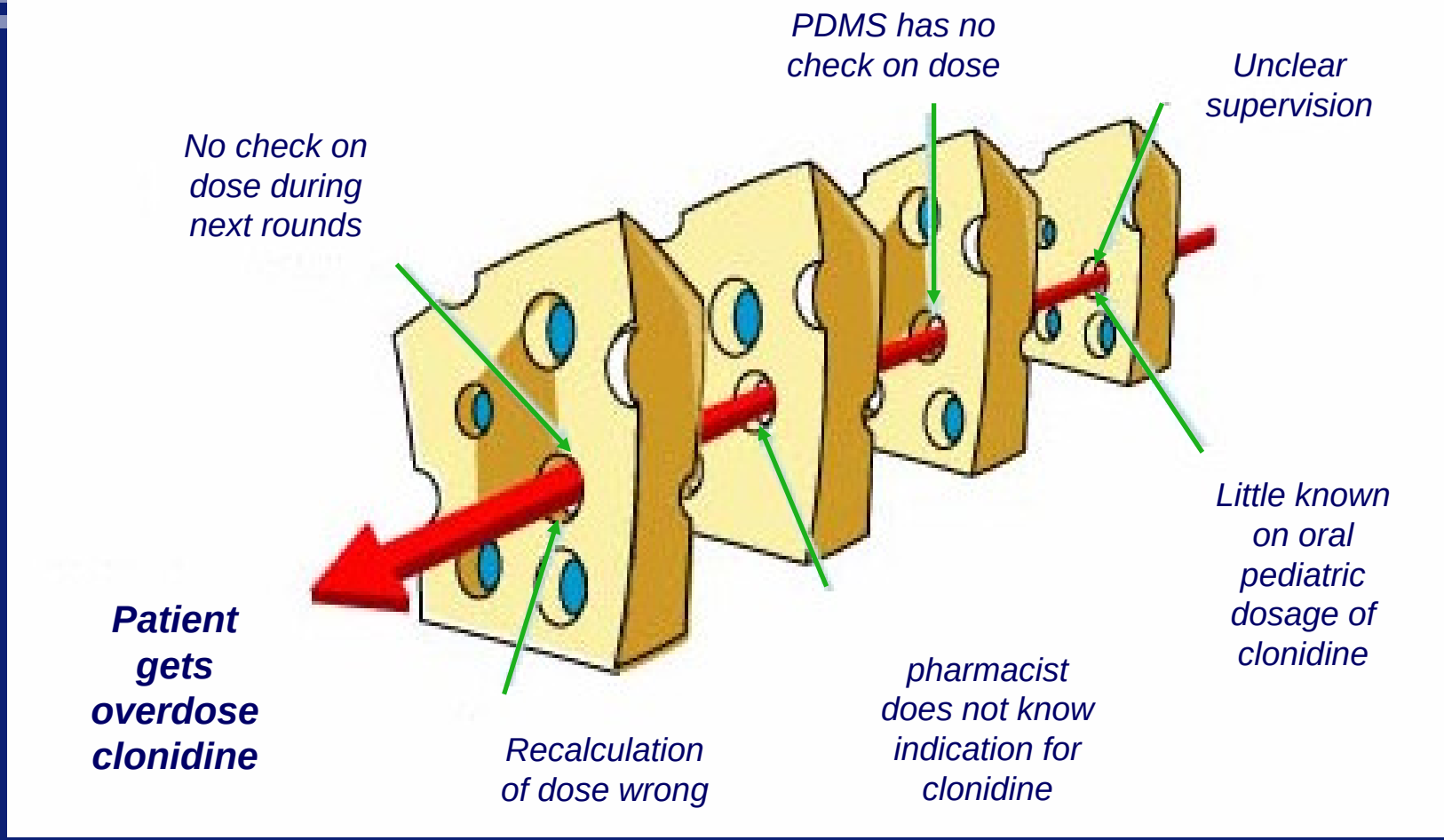
Kans op optreden	Geen gevolgen patient	Minimaal letsel	Middelmatig letsel	Ernstig letsel	Nog onbekend
vrijwel zeker	2 geel	2 geel	3 oranje	4 rood	4 rood
waarschijnlijk	2 geel	2 geel	3 oranje	4 rood	4 rood
mogelijk	1 groen	2 geel	3 oranje	3 oranje	4 rood
onwaarschijnlijk	1 groen	1 groen	2 geel	3 oranje	4 rood
zeldzaam	1 groen	1 groen	2 geel	2 geel	3 oranje

Rapport R. Willems: ‘Hier werk je veilig of hier je werk je niet’.

SF reports: analysis, example



SF reports: analysis, example



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Critical Nursing Situation Index

- **A CNS is an observable situation that deviates from “good clinical practice” and that can lead to an adverse event**
- **(Binnekade, J.M., et al., *The Critical Nursing Situation Index for safety assessment in intensive care.* Intensive Care Med, 2001. 27(6))**

- **Adjusted list of 192 items, tailored on surgical PICU, based on protocols**

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CNSI: results

1232 reported violations in 1 year

Top 5 of protocol violations:

1. insertion- and/or replacementdate central line/ i.v.systems
2. insertion- and/or replacementdate gastric-/duodenal tube
3. oral hygiene
4. transfusionform
5. settings and/or orders ventilation

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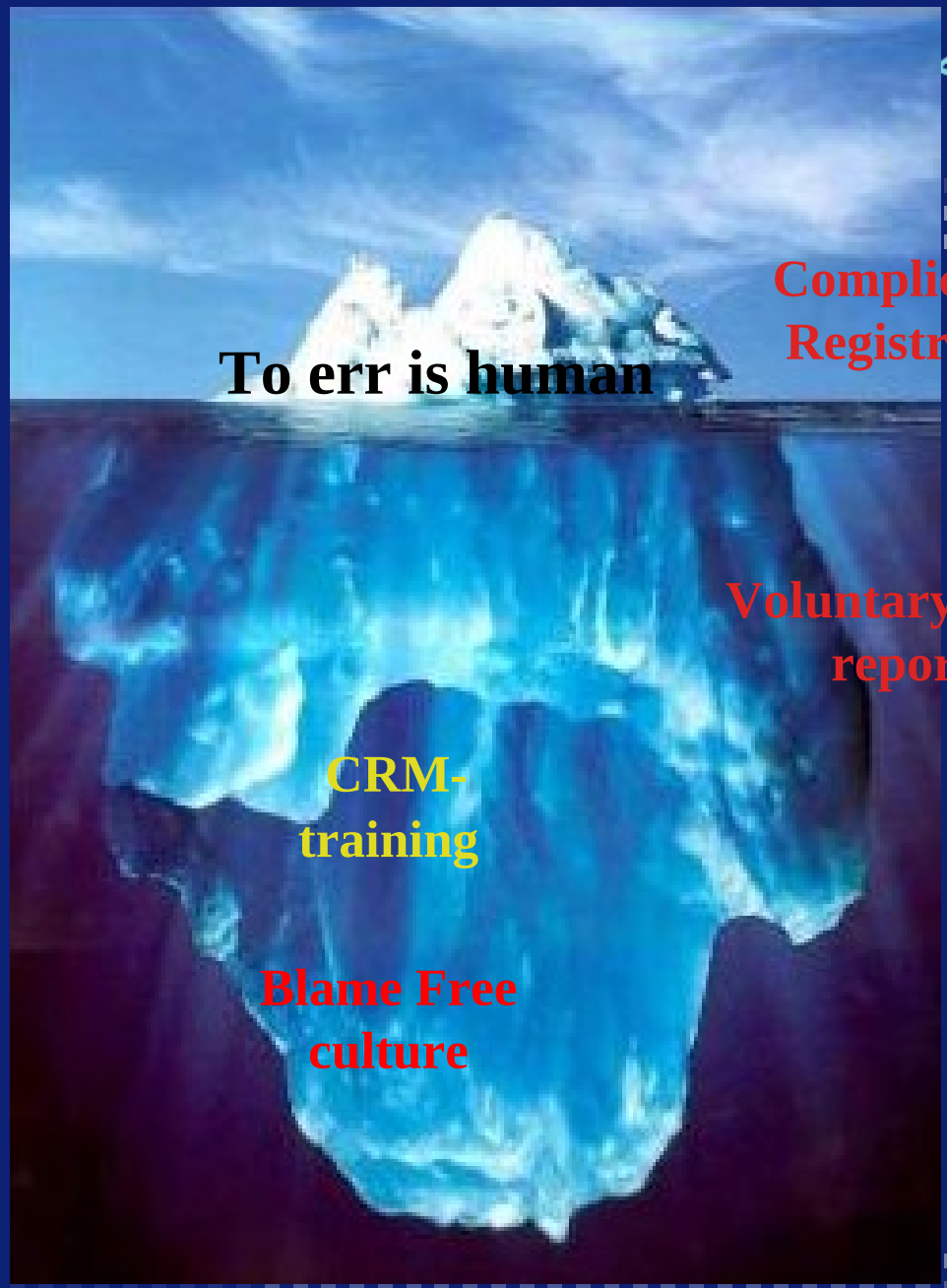

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Crew Resource Management

- From the aviation industry
- Analysis of accidents and incidents: 70% of cases caused by insufficient communication and teamwork: “human factors”
- Awareness of this and teamtraining results in significant improvement

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Crew Resource Management

- Medical and nursing staff
- Subjects are:
  - human errors
  - effects of stress on action and perception
  - communication of teammembers
  - groupdynamics
  - leadership, responsiblities and authority
  - decision making
  - risk management
- Training in January 2005

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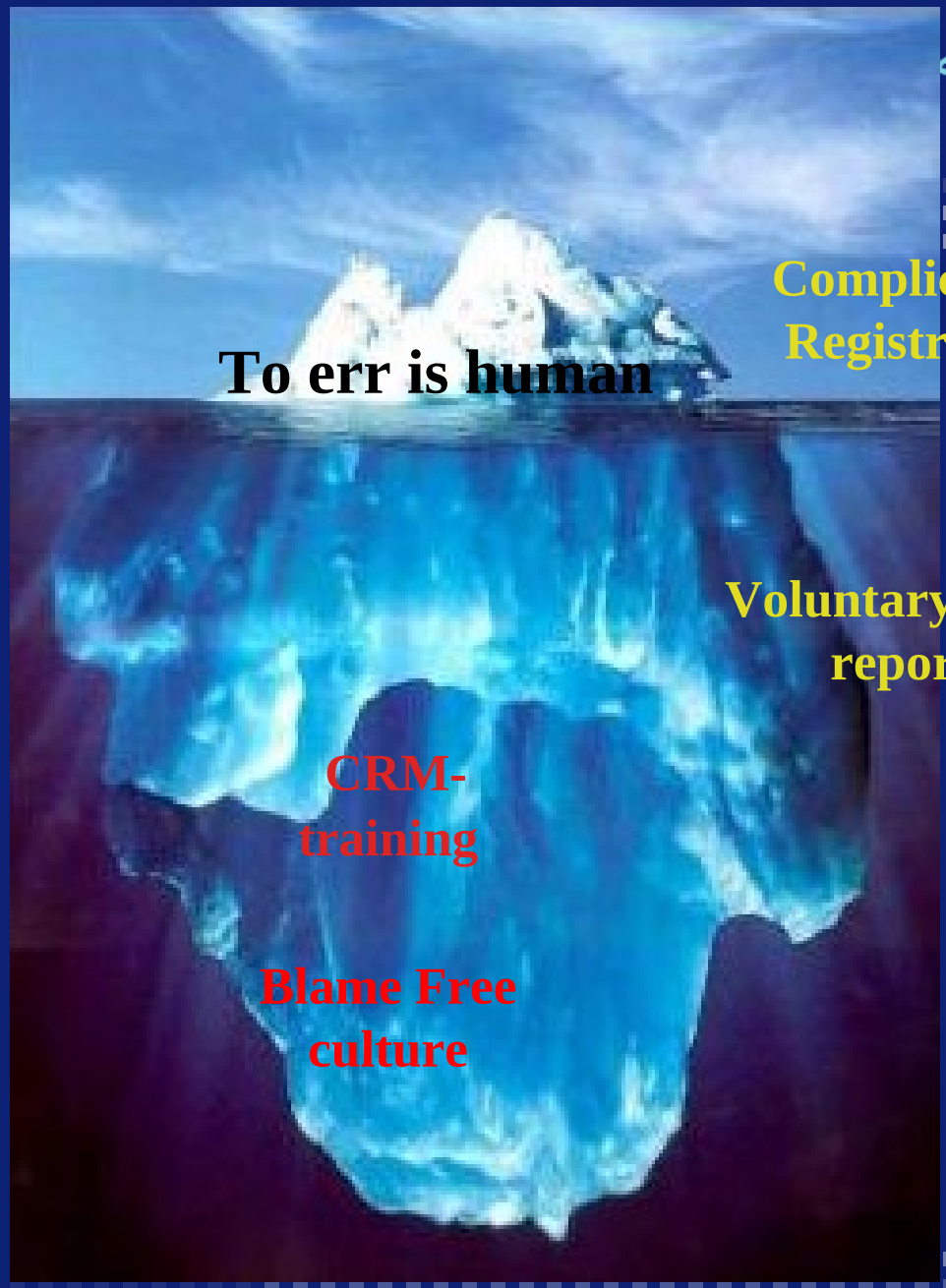

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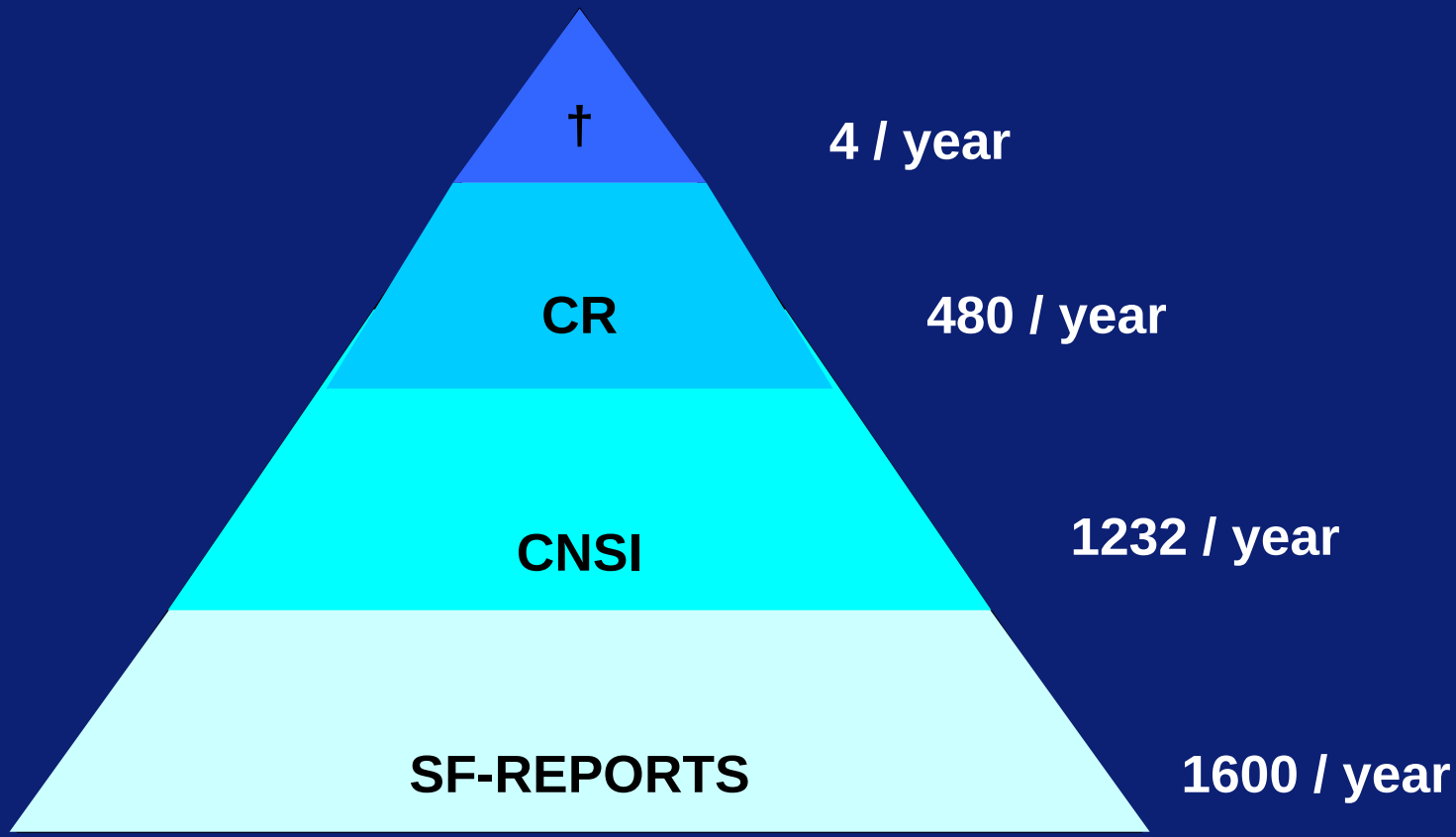
Synthesis components PSMS

Top 5	CR	SF	CNSI
1	Medication	Medication	Lines
2	Hypoxia	PDMS	Tubes
3	Sepsis	Lines/tubes/ cath	Oral hygiene
4	Lineproblem	Equipment	Transfusion-form
5	Atelectasis	Environment	Ventilators

Incidents piramid



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Culture change

GENERATING

2006

INCREASING
INSIGHT

PROACTIVE

CALCULATING

2003

INCREASING
TRUST

REACTIVE

PATHOLOGICAL

5 typen cultuur

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CONCLUSIONS

- Implementing PSMS on ICU is possible
- Relationship shown between complications, protocol violations and (near-)incident-reports

- Thanks to :
- All employees sPICU
- and…
- Medical technology
- Hospital pharmacists
- Laboratory unit
- Radiology unit
- Microbiology unit
- Hygienic services….