

A propos du « Crew Resource Management » de l'aviation à la médecine

Théorie et pratique



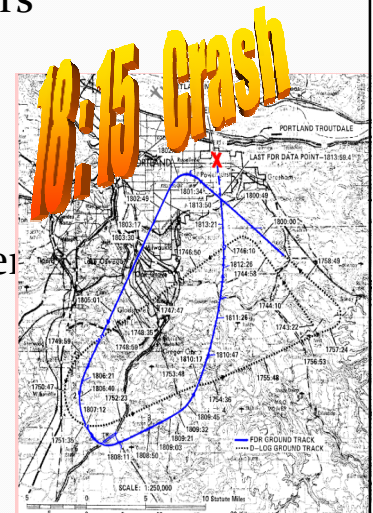
Dr G Haller MD, MSc, PhD 07. 2013

Origine du CRM: L'aviation civile



Chronologie d'une catastrophe...

- 17:05 Vol 173 en approche **65 mn fuel**
- 17:12 Problème train d'atterrissage
- 17:38 Cpt appelle MC Douglas à San Francisco **33 mn fuel**
- 17:44 Début discussion préparation passagers
- 17:46 Ing informe équipage 5000 lbs fuels
- 18:02 Ing informe 4000 lbs fuel-5 mn piste
8 mn fuel.....
- 18:03 Discussion équipage sur problèmes techniques et délai préparation passagers
- 18:06 Arrêt réacteur n° 1
- 18:13 Arrêt réacteur n° 2 **Plus de fuel !!!**



Conclusions commission d'enquête



« Failure of the captain to monitor properly the aircraft's fuel state and to properly respond to crewmember's advisories regarding fuel state. »



"The failure of the other two flight crewmembers either to fully comprehend the criticality of the fuel state or to successfully communicate their concern to the captain.«"

This accident exemplifies a recurring problem --a breakdown in cockpit management and teamwork during a situation involving malfunctions of aircraft systems in flight....

Le facteur humain: la clé des accidents

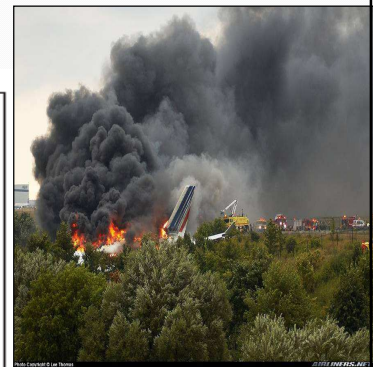
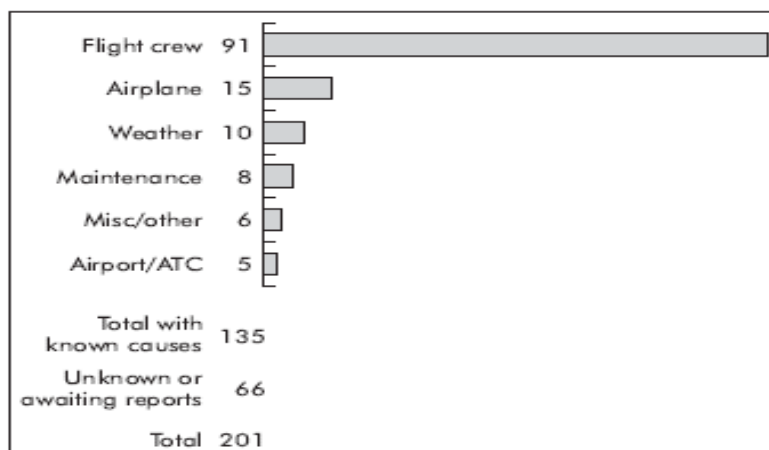
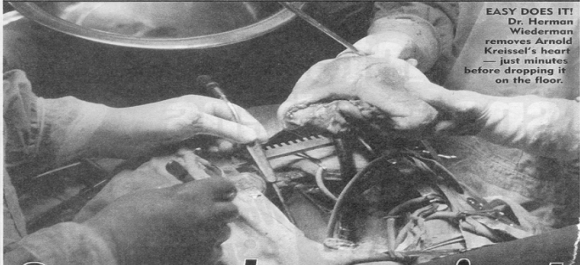


Figure 5 Statistical analysis of commercial jet accidents for the years 1990 to 1999 by primary cause. Information provided by Boeing Aircraft Corporation, 1990 Statistical Summary, June 2000, Rev A.

Et dans les hôpitaux????

WORST CASE OF MALPRACTICE EVER!



EASY DOES IT!
Dr. Herman Wiederman removes Arnold Kreissel's heart — just minutes before dropping it on the floor.

Surgeon drops patient's heart — and nurse steps on it!

MUNICH, Germany — A fumble-fingered surgeon botched a delicate heart operation when he accidentally dropped the patient's vital organ — and one of his nurses stepped on it!

The unlucky patient, 55-year-old Arnold Kreissel, died an hour into the rare, high-risk procedure, during which doctors actually took his heart from his body in order to remove a dangerous tumor.

"The unsuccessful outcome

By GEORGE SANFORD
Weekly World News

Schienze, who assisted in the operation. "Dr. Wiederman placed the patient's heart in a bowl, where he sliced away the tumor. "When he called for me to hand the remained organ to him,

slippery with blood.

"In the momentary confusion that followed in the crowded room, a nurse squished it."

Because the patient could be kept alive artificially for only a

fast forward: Kreissel was kept alive artificially for only a

Evènements indésirables dans les hôpitaux par pays

	USA Harvard	USA Californie	USA	Australie	Grande- Bretagne	USA	France
Année	1991	1992	1992	1995	2001	2003	2005
Auteur [Référence]	Brenan [15]	Thomas [19]	McGuire [20]	Wilson [21]	Vincent [22]	Gurwitz [23]	ENEIS [24]
N ^b	30 000	15 000	44 603	21 179	15 897	15 897	8 754
EI/patient (%)	3,7	5,0	5,0	5,0	10,8	5,0	5,1
Défaillance (%)	27,0	29,2	49,0	50,0	46,0	27,0	35,4
DC/EI (%)	13,6	6,6	1,8	4,9	8,0	11,0	?

* EIE : Evènements indésirables évitables. Les erreurs sont assimilées aux EIE.

^b N : Nombre de séjours hospitaliers.

F Latil. Pratiques et Organisation des Soins 2007: 38; 1

Cause principale: le facteur humain

USA JCAHO 2006	UK 2007	USA GAWANDE 2003	USA Risser 1999	USA SUTCLIFFE 2004
Toutes spécialités	Obstétrique	Chirurgie Générale	Urgences médicales	Médecine
Erreurs majeures	Mortalité maternelle	Evènements indésirables	Plaintes	Accidents médicaux
Problèmes de communication	Problèmes de communication	Problèmes de communication	Problèmes de communication	Problèmes de communication
65%	48%	43%	50%	2^{ème} cause

Pour y faire face: le CRM



Définition Crew resource management dans l'aviation civile

*« Former les équipages à diminuer les erreurs du
« pilote » et en utilisant mieux les ressources
humaines disponibles à bord »*

RL Helmreich et al 1999 The Evolution of CRM training in commercial aviation

- 1992 Anaesthesia Crisis Resource Management
 - (D Gaba Stanford)
- 2000 Error, stress, teamwork in aviation & medicine
 - (B Helmreich Texas/H-G Schäffer-Basel)
- 2000 CRM dans les départements d'urgence
 - (D Risser et al. Washington)
- 2007-08 CRM dans les services d'obstétrique
 - (Nielsen et al. Harvard Boston; Equipe Ensemble. HUG Genève)
- 2008 CRM dans le traitement de malades chroniques
 - (Taylor et al. Nashville)
- 2009 CRM Infectiologie, Soins Int., Chirurgie
Oncologie, Pédiatrie.....

Es-ce efficace ?

Error Reduction and Performance Improvement in the Emergency Department through Formal Teamwork Training:

John C Morey HSR 2002

Table 4

Effect of the Intervention over Time—Experimental Group Only

		Period 2 vs. Period 3							
Measure	<i>n</i>	Period 1	Mean (std)	Period 2	Mean (std)	Period 3	Mean (std)	Mean Difference	<i>p</i> ^a
Team Behavior									
Team dimension ratings	6		30.4 (14.3)		57.0 (10.7)		58.3 (14.5)	1.4	.710
Subjective workload	6		33.7 (10.6)		38.2 (8.2)		35.1 (10.1)	-3.1	.081
ED Performance									
Observed errors	5		30.9% (22.5%)		4.4% (4.9%)		2.8% (6.2%)	-1.6%	.720
Admission evaluation	6		80.5 (4.8)		83.4 (2.2)		85.7 (3.6)	2.4	.157
Attitude and Opinion									
Staff attitudes toward teamwork	6		75.0 (1.8)		78.5 (1.7)		73.2 (8.0)	-5.2	.200
Staff perceptions of support	6		76.2 (3.4)		83.1 (4.4)		76.6 (5.6)	-6.5	.131
Patient satisfaction	6		90.7 (2.1)		92.6 (3.9)		91.9 (3.4)	-0.7	.565

Two-sided value for paired t-test.

Health Serv Res. 2002 December; 37(6): 1553-1581.
doi: 10.1111/j.1475-6773.01104.

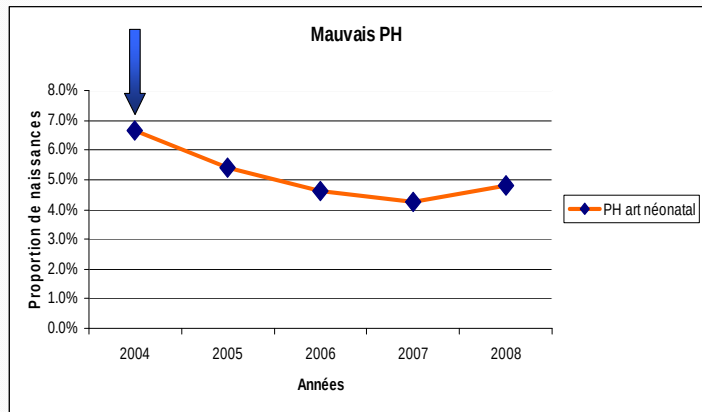
➡ de 30.9% à 4.4% du taux d'erreurs médicales

Amélioration significative du travail d'équipe (p<0.05)

Effect of Crew resource management in obstetrics

G.Haller et al

- **Satisfaction**
63% à 90% des participants très satisfaits selon aspects testés
- **Connaissance**
80% des notions enseignées sont mémorisées à la fin du cours
- **Changement de comportement**
Meilleur climat sécuritaire, travail d'équipe, et reconnaissance du stress
- **Changement au niveau organisationnel**
Amélioration de la qualité et sécurité des soins



Effect of crew resource management training in a multidisciplinary obstetrical setting

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Abstract

Objective: To assess the effect of a Crew Resource Management (CRM) intervention specifically designed to improve teamwork and communication skills in a multidisciplinary obstetrical setting.

Method: Design: A before-and-after cross-sectional study designed to assess participants' satisfaction, learning and change in behavior, according to Kolbert's evaluation framework for training programmes. Setting: Labor and delivery units of a large university-affiliated hospital. Participants: One hundred and thirty-two obstetricians, nurses, physicians and midwives from the department of obstetrics, gynecology and pediatrics. Intervention: All participants took part in a CRM-based training programme specifically designed to improve teamwork and communication skills. Principal measures of outcome: We assessed participants' satisfaction by means of a 38-item standardized questionnaire. A 36-item survey was administered before and after the course to assess participants' learning. Behavioral change was assessed by 37-item safety attitude questionnaire measuring staff's change in attitude to safety over 1 year of programme implementation.

Results: Most participants valued the experience highly and 61–90% rated their level of satisfaction as being very high. Except for seven items, the 36-item survey testing participants' learning demonstrated a significant change ($P < 0.05$) towards better knowledge of teamwork and shared decision making after the training programme. Over the year of observation, there was a positive change in the team and safety climate in the hospital (odds ratio (OR) 2.5, 95% confidence interval (CI) 1.3–4.5) to OR 4.7, 95% CI 2.2–10.2). There was also improved stress management (OR 2.4, 95% CI 1.2–4.8) to OR 3.6, 95% CI 1.8–8.6).

Conclusion: The implementation of a training programme based on CRM in a multidisciplinary obstetrical setting is well accepted and contributes to a significant improvement in interpersonal teamwork.

Keywords: patient safety, programme evaluation, teamwork, training programme

Association Between Implementation of a Medical Team Training Program and Surgical Mortality

J Neily et al, JAMA 2010

- ↘ de 18% de la mortalité postop
- Relation dose-effet du programme:
chaque ¼ du programme → baisse
de 0.5 décès pour 1000 (95% CI : 0.2-1.0;
p=0.01)

Table 3. Improvements Reported by Medical Team Training Facilities From Structured Interviews

Reported Improvements	No. (%) of Facilities (n = 74)
Communication among operating room staff	35 (47.2)
Staff awareness	34 (46.0)
Overall efficiency	49 (66.2)
Equipment use during surgery	44 (59.9)
Reduced length of procedures	15 (20.3)
Improved first-case start times	30 (40.5)
Other types of efficiency improvements ^a	6 (8.1)

^aFor example, reduced delays for surgical consent, decreased turnover time between cases, reduction in staff over-time hours.

D'après F Clergue 2012

Mais Attention !!!!



Comment sont-ils construits ?

Structure classique Programme CRM

1. Leadership

2. Team caractéristiques et building

5. Gestion du stress/priorisation

3. Connaissance situations à risque

6. Communication

4. Gestion compétences métiers

7. Mise en pratique

Leadership



- Autocratique



- Laissez-faire

- « Country club »

Ambiance



Performance

Benne K et al Journal of Social issue 2-42-47

Communication



- Barrières hiérarchiques, corporatistes
- Biais culturels
- Stéréotypes
- etc.

Team building



Rôles

Définis par les fonctions que les individus remplissent et par la nature de leur contribution au groupe

CAVE ≠ Statut (position hiérarchique) ou personne (individu)

Team building Mieux se connaître professionnellement

Qu'est-ce que j'attends des autres?

Qu'est-ce que les autres attendent
de moi?

L'erreur est vite arrivée: Exemple



rouge vert bleu orange vert orange rouge
bleu orange rouge orange vert orange bleu
bleu rouge bleu rouge bleu vert orange bleu
rouge orange vert bleu orange bleu bleu
orange vert orange vert bleu rouge rouge
orange vert bleu vert orange rouge rouge
orange vert bleu bleu rouge vert bleu rouge
bleu orange vert rouge vert bleu orange bleu
rouge orange vert orange bleu

Ce qui compte, c'est de rester en
contrôle de ce que l'on fait



Programme Ensemble-HUG Dedale © 2010

Gestion du stress

Deux sortes d'urgence:

- La course contre la montre (vitesse)
- Le rythme est imposé par le plus lent
- La perte de contrôle (précipitation)



Synthèse

- L'implémentation de technique de CRM de l'aviation au monde médical est largement possible.
- Le CRM satisfait largement les participants, il améliore leur niveau de connaissance et leur attitude en matière de travail en équipe et finalement, les outcomes patients

A vous.....

