

Impact of nursing on patient safety

The case of medication errors

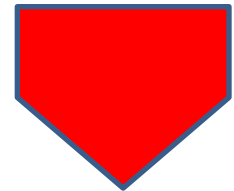
Walter SERMEUS, PhD
Catholic University Leuven
Belgium

Outline

- The role of nurses in the medication process
- Why do we have so many medication errors?
Understanding the issue
- Effectiveness of different interventions & strategies
- How to change when change is hard

The role of nurses in the medication process

- (a) ordering/prescribing,
- (b) transcribing, verifying, dispensing and delivering
- (c) administering, and
- (d) monitoring and reporting.



The role of nurses in the medication process

- (a) ordering/prescribing,
 - Mainly Doctors, but also APN-nurses
 - Errors related to knowledge, workload, attitude



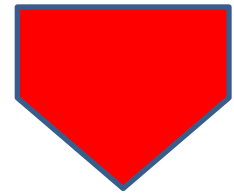
The role of nurses in the medication process

- (a) ordering/prescribing,
- (b) transcribing, verifying, dispensing and delivering
 - Nurses & pharmacists



The role of nurses in the medication process

- (a) ordering/prescribing,
- (b) transcribing, verifying, dispensing and delivering
- (c) administering, and
 - Mainly nurses
 - 20- 27% errors incl. wrong time errors
 - 7-18% errors excl. Wrong time errors
 - MAEs are most likely to be wrong time, omissions, and wrong dose (wrong or extra dose).



The role of nurses in the medication process

- (a) ordering/prescribing,
- (b) transcribing, verifying, dispensing and delivering
- (c) administering, and
- (d) monitoring and reporting.
 - Major underreporting (10-25%)
 - Incident reporting is unreliable (1% reporting compared with direct observation, 1/7 compared with chart review)



Summary of main evidence of the problem

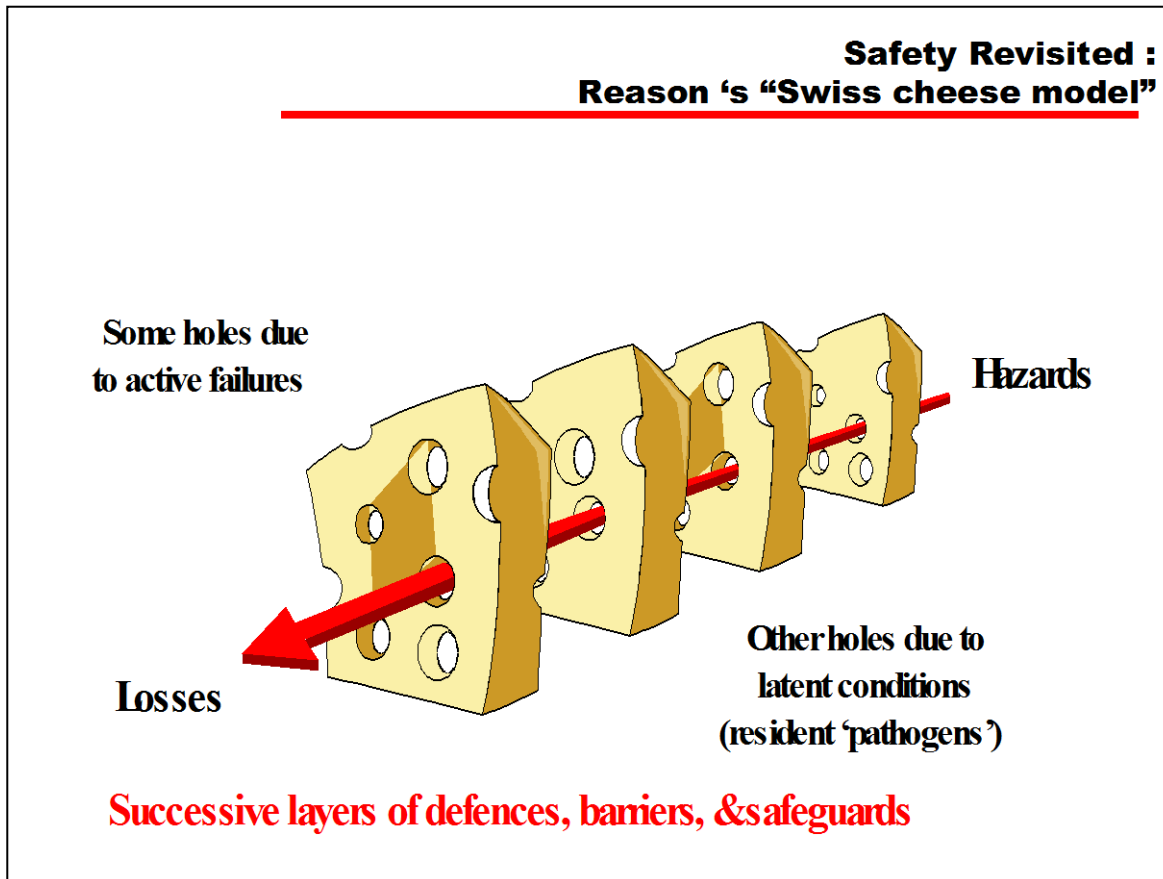
- Important role of nurses in medication process
- Time consuming, critical (last person in chain), mainly involved in administration
- High number of medication administration errors (MAE) – high variability
- Mainly wrong time, omissions, and wrong dose
- Highly underreported in voluntary reporting systems

**WHY DO WE HAVE SO MANY
MEDICATION ERRORS?**

UNDERSTANDING THE ISSUE

Swiss cheese model

J. Reason



We can't change the human condition,
but we can change the conditions under which humans work.

Different factors

Latent failures

Active failures



SYSTEM FACTORS

- Low staffing – high Workload
- Long shifts, rotating Shifts
- Agency/floating/ Temporary staff
- Poor lighting
- Emergency situations
- Patient transfers
- Safety Climate

PROCESS FACTORS

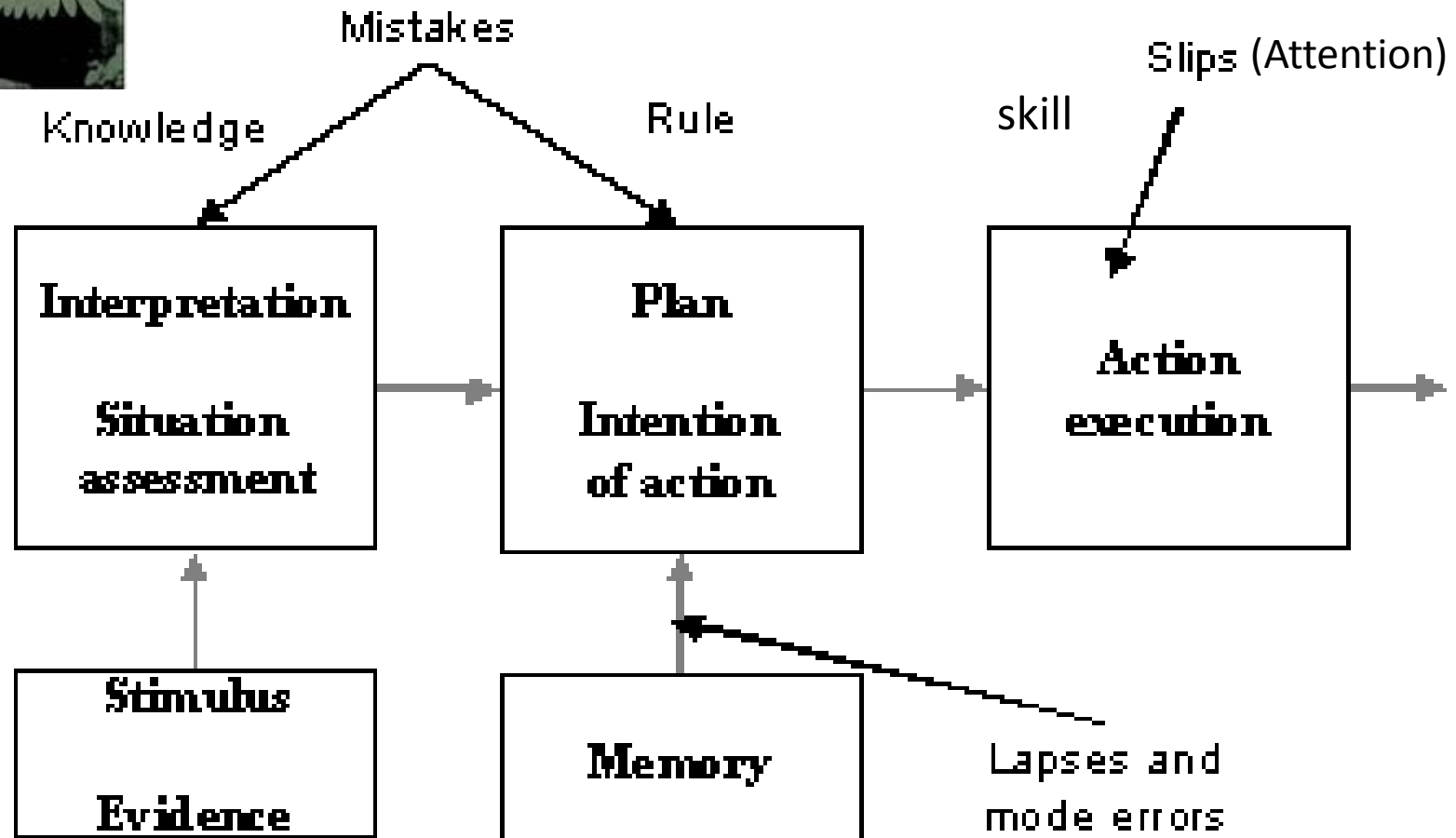
- Distractions
- Interruptions
- Double check procedures
- Technology (e.g. barcode: BCMA)
- Communication
- Complexity
- Monitoring patients' Responses to medication

HUMAN FACTORS

- Knowledge of medication
- Mathematical skills
- Experience
- Dyslexia problems
- Fatigue



Theory of human factors



What do we know about effective interventions?

- Evidence is weak and inconsistent
- Effect of system-focused strategies such as:
 - increasing nurse staffing levels, decreasing workloads, improving the safety climate, instituting policy and procedures such as RN independent double-checks
 - No systematic assessment, lack on evaluation studies

Effect of safety climate on medication errors*

- Quasi-experimental design: 4 Belgium hospitals: 4 control wards, 12 intervention wards
- Intervention:
 - Education (knowledge about medication) and improved prescribing
 - Involvement of patient in medication administration (information)
 - Systematic reporting culture on ADE
- Evaluation ADE by IHI-trigger tool (chart review)**

Results	Pre-intervention ADE-rate	Post-intervention ADE-rate
Control group	9/259 (3,47%)	6/267 (2,25%)
Intervention group	18/800 (2,25%)	8/870 (0,92%)
Relative Risico	0,87 [0,65-1,07]	0,74 [0,42-1,02]

* Hellings, 2009

** Resar et al. 2003

Process focus

- Process-focused factors include minimizing distractions and interruptions during medication administration, using equipment correctly, and assessing and monitoring the patients' responses to the medications.
- A few small, single-site studies have assessed the effects of implementing protocols addressing these issues;
- but overall, the evidence is weak.

- Few studies on assessing the impact on error rates of bar-coded medication administration and other medication safety technologies.
 - Franklin et al. reported a decline in MAE rates from 8.6 percent to 4.4 percent in a teaching hospital in England. The system included BCMA, computerized order entry, automated dispensing, and electronic medication administration record.

Human factors

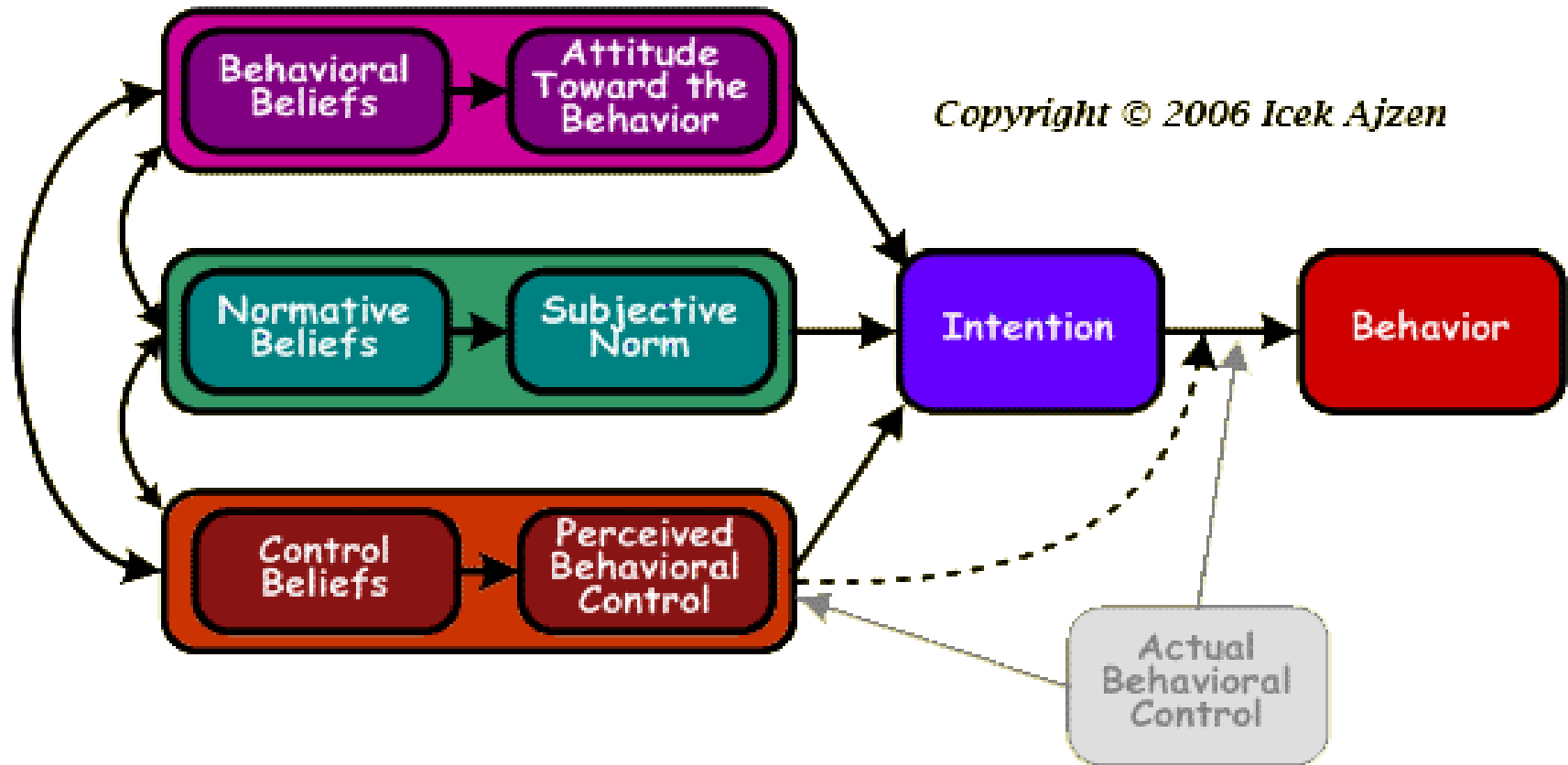
- The human factors of knowledge and skills (e.g., mathematical) have been studied for decades, and changes in basic education and continuing education have been made.
- Studies linking these strategies to outcomes such as the rate of medication errors have not been completed.
- The impact of fatigue on MAEs is currently of great interest, but mainly descriptive studies.

**HOW TO CHANGE THINGS WHEN
CHANGE IS HARD ?**

In general: what works?

Most of time effective	Sometimes effective	No or little effect	Effect not known - variable
Outreach visits	Audit & feedback	Educational materials	Financial stimuli
Decision support, reminders	Opinion leaders / champions	Courses, conferences	Administrative / organisational interventions
Interactive education	Local consensus meetings		
Multi-faceted interventions	Patient-oriented interventions		
Mass-media interventions			

Theory of Planned Behaviour

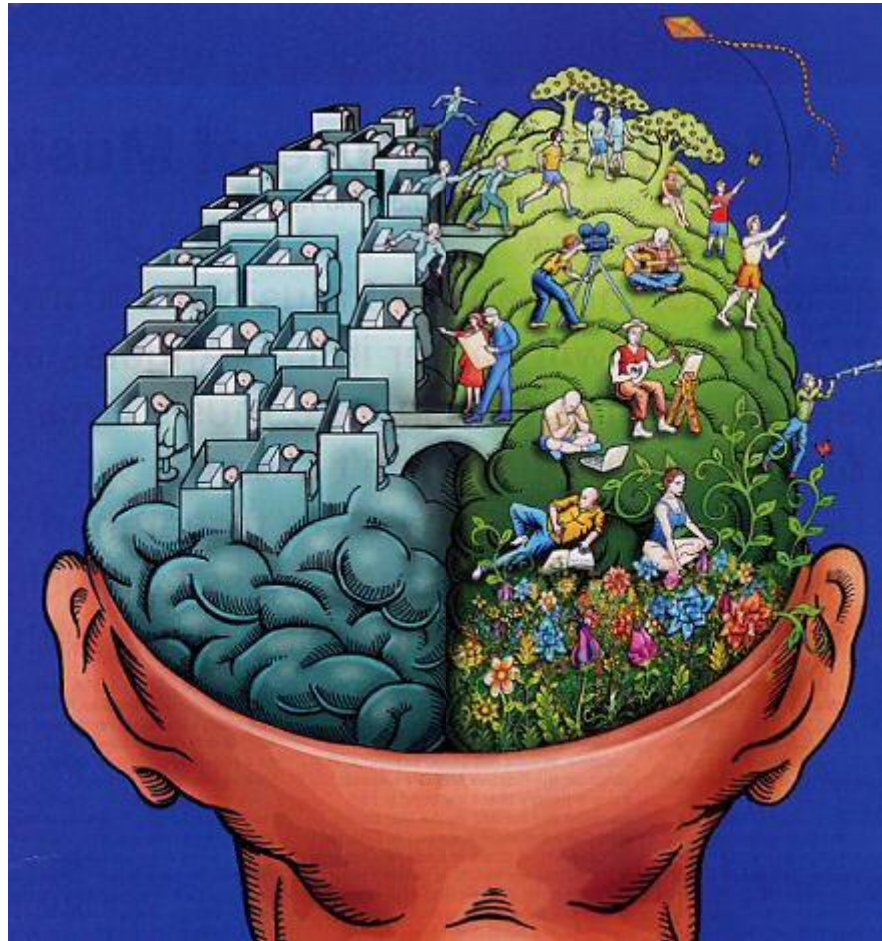


(Ajzen 1991)

You should look how change/intervention has impact on the behaviour of health professional / nurse

- Normalization process model
- Normalization vs adoption / rejection
- 4 dimensions:
 - Interactional workability: effect on interactions between people and practices
 - Relational integration: relation to existing knowledge and relationships
 - Skill-set workability: effect on current division of labour
 - Contextual integration: relation to the organisation

You should focus your interventions on
left and right brain activities



Taking Stairs ?



Left brain

Right brain



Left (Rider) – right (elephant) brain

DIRECT THE RIDER

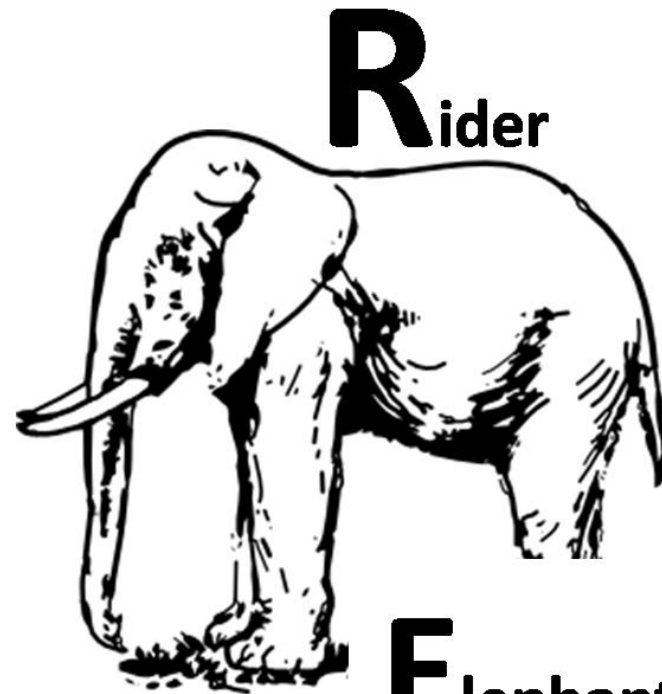
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MOTIVATE THE ELEPHANT

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- 7. Grow Your People 149

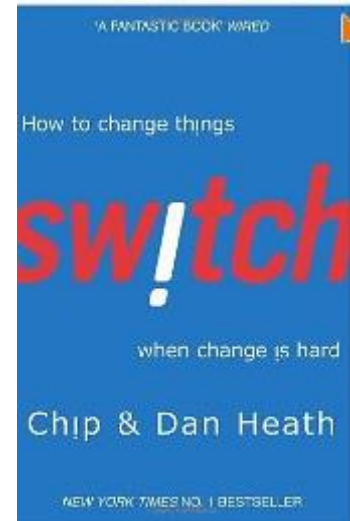
SHAPE THE PATH

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Path

Elephant



Selected references

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THANK YOU FOR YOUR ATTENTION

