To Err is Human ???

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No. of admissions	30121
No. of adverse events	1278 (4%)
Minor impairment	57%
Temporary disability (< 6 month)	14%
Permanent disability	3%
Adverse events leading to death	14%
Due to negligence	306 (28%)

Brennan et al, Harvard, NEJM, 1991

Adverse events

- Substantial amount of injury to patients from medical management
- Many injuries → result of substandard care.
- Rate significantly increase with age

Brennan et al, Harvard, 1991

Errors in diagnosis and management

n = 230

Type of error	Diagnosis	Management
Total	37 (16%)	16 (7%)
Pleural injuries	27	9
Cardiac injuries	3	1
Mediastinal vascular injury	2	1
Diaphragmatic hernia	5	5

Muckart et al, Durban, South Africa, AJS 1989

6 month period

	n	Died
Total No. with abdominal injuries	150	
Total	18 (12%)	8 (44%)
Missed investigation	7	1 (14%)
Organ injury missed at surgery	7	5 (71%)
Failed exploration RPH	4	2 (50%)

Muckart et al, Durban, South Africa AJS 1991

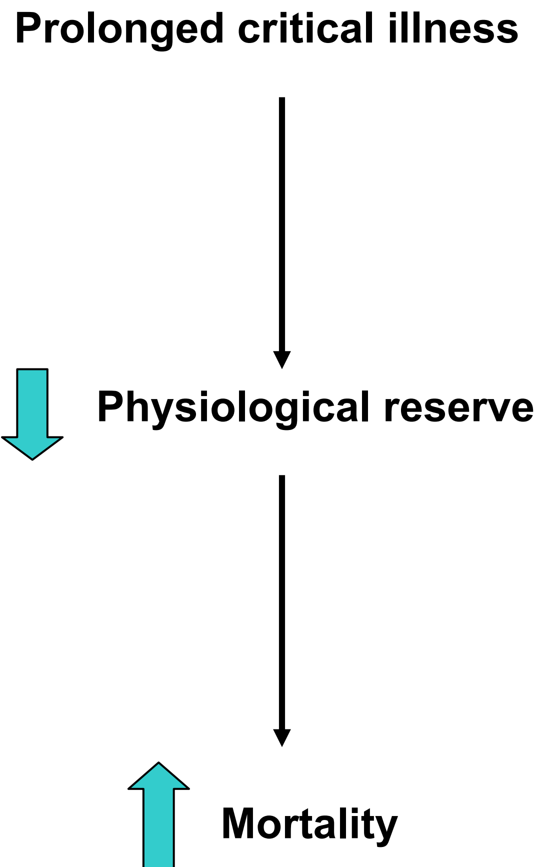
Adverse events in ICU

Durban, South Africa

Total No. of patients	657
Adverse events (369)	229 (35%)
Adverse events per patient	1 - 4
Overall mortality	154 (23%)
Mortality in patients without adverse events	87 (20%)
Mortality in patients with adverse events	67 (29%)
Mortality as a result of adverse event	22 (30%)

Muckart et al 1994: Durban, SAJS, South Africa.

Critically ill patients



Adverse events in Gynaecology

Total	1866	-
Adverse events	220	12%
Disability (minor)	178	95%
Disability (moderate)	3	1.4%
Avoidable	115	52%
Deaths (event-related)	39	18%

Matsaseng & Moodley, Durban, 2004

Level of surgeon

Level	Frequency	%
Senior consultant	117	10
Junior consultant	342	30
Senior registrar	614	54
Junior registrar	57	5
Intern	10	1
Midwife	1	0.01

Matsaseng & Moodley, Durban, 2004

Adverse events

- Diagnostic errors → Management errors → Morbidity & Mortality
- Adverse events in critically ill patients → increased mortality
- Rate increases with age
- Potentially avoidable
- Affect all levels of staff
- Adherence to standard protocols → prevents morbidity & mortality.

Muckart et al, Durban, 1989, 1991, 1994
Matsaseng & Moodley, Durban, 2004

	n	%
Inpatients	13890	
Complaints	48	0.3%
Staff attitude	22	
Waiting time	4	
Administration	1	
Adverse events	21	0.2%
Litigation	5	(23%)

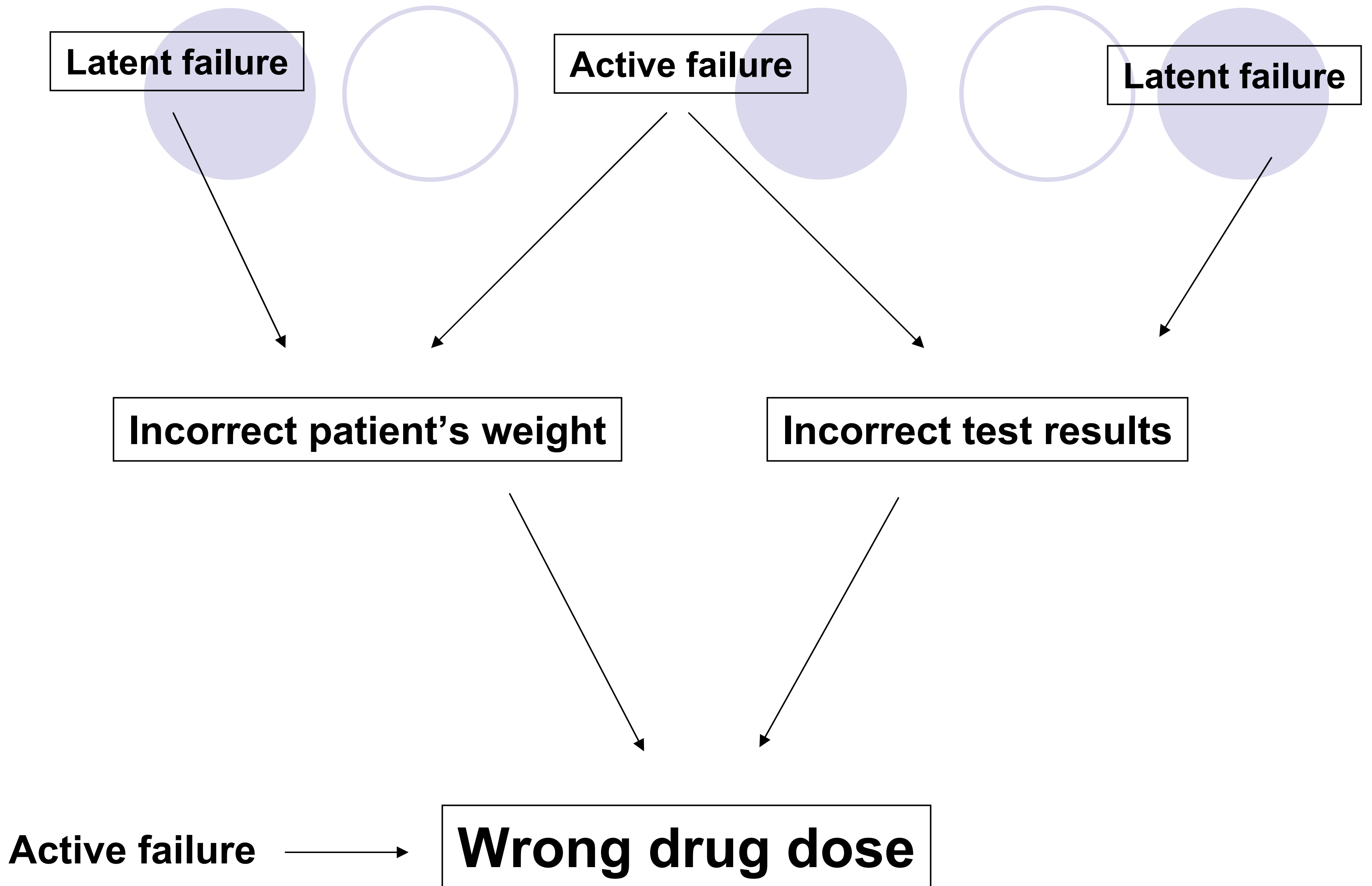
Quality Assurance Office, IALCH

Pathogenesis of errors
Reason's model

- Active failures
  - Unsafe acts
    - Action slips
    - Cognitive failures
    - Procedural violations

- Latent failures
  - Poor planning decisions
  - Enabling environment for failures
    - Workloads, Stress, rapid change

Reason J, BMJ 2000


Latent failure
Active failure
Latent failure
Incorrect patient's weight
Incorrect test results
Active failure
Wrong drug dose

Human Fallibility

- Person approach
  - Focuses on errors
    - Forgetfulness
    - Inattention
    - Moral weakness

- System approach
  - Errors seen as consequences
    - Concentrate on conditions
    - Build defences

Reason J, BMJ 2000

Avoiding errors
Safeguards

- People

- Infrastructure

Hazards

Losses

General measures

- Organised clinical audits
- Mortality and morbidity meetings
- Outcome data recording
- Accreditation of doctors
- Accreditation of institutions

- **Person approach**
  - **Concentrate on the individual**
    - **Limiting the incidence of dangerous errors**

- **System approach**
  - **Comprehensive approach:**
    - **Person**
    - **Team**
    - **Workplace**
    - **Institution**

System approach

- Identify root causes
  - Active failures
  - Latent failures

- Record all errors and their causal relationships
  - Upstream errors
  - Distal errors

- Health Professions Council of South Africa (HPCSA)
  - Promotion of health
  - Professional training
  - Practice
- Individual institutions
  - Patients' advocate
  - Research Ethics Committees
- Individual patients
  - Media
  - Legal recourse
    - Courts (e.g. Legal resources centre)
    - HPCSA

Medical Malpractice Litigation
Harvard Medical School

Total No. of patients	30195
Adverse events	1133
Due to negligence	280 (4%)
Malpractice claims	51 (18%)
Plaintiff compensated	28(55%)

Localio et al, NEJM, 1991, Harvard
Brennan et al NEJM 1996, Harvard

- Infrequently compensates patients injured by medical negligence
- Rarely identifies and holds providers accountable for substandard care
- Predictor of payment
  - Severity of disability
  - Not occurrence

Localio et al, NEJM, 1991, Harvard
Brennan et al NEJM 1996, Harvard

Identify causes

Prevent errors

Reduce costs

Confidence ↑

Medicine
High reliability organisation?