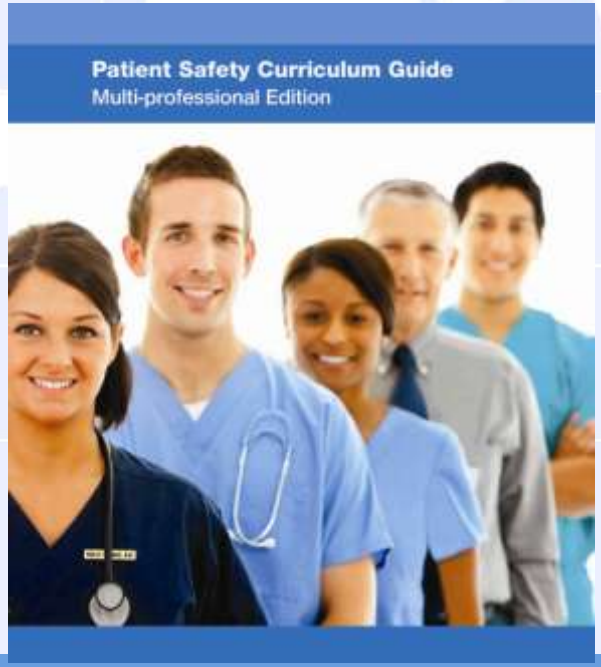
Topic 3
Understanding systems and the effect of complexity on patient care



Learning objective

Understand how systems thinking can improve health care and minimize patient adverse events

Knowledge requirements

- Explain the terms *system* and *complex system* as they relate to health care

- Explain why a systems approach to patient safety is superior to the traditional approach

Performance requirement

Describe the elements of a safe health-care delivery system

A “system”

- Any collection of two or more interacting parts, or
- “An interdependent group of items forming a unified whole”

National Patient Safety Education Framework. Canberra, Commonwealth of Australia, 2005.(p.202)

A “complex system”

- Many interacting parts
- Difficult if not impossible to predict the behaviour of the system based on a knowledge of its component parts

Health care is a complex system

Complexity = increased chance of something going wrong!

Two schools of thought regarding iatrogenic injury

- Traditional or person approach:
  * The “old” culture
  * “Just try harder”
- Systems approach:
  * The “new look”

You may encounter a bit of both in your “journey”

Person approach

- See errors as the product of carelessness
- Remedial measures directed primarily at the error-maker
  - Naming
  - Blaming
  - Shaming
  - Retraining

An individual failing?

Doesn't work!

- People don't intend to commit errors …

  … only a very small minority of cases are deliberate violations
- Won't solve the problem - it will make it worse
- Countermeasures create a false sense of security

  … "we've 'fixed' the problem"
- Health professionals will hide errors
- May destroy many health professionals inadvertently - the "second victim"

Why investigate?

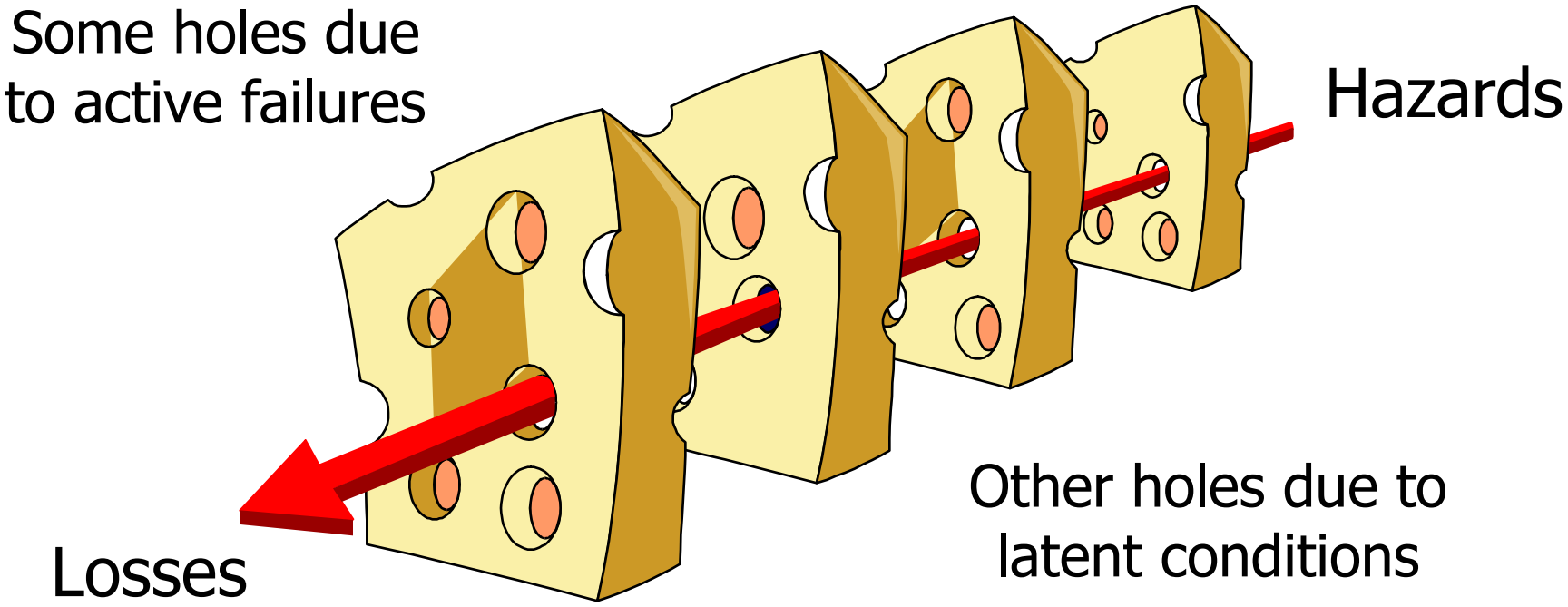
- The more we understand how and why these things occur, the more we can put checks in place to reduce recurrence
- Strategies might include:
  - Education
  - New protocols
  - New systems
- Accountability

The new approach

Multiple factors :

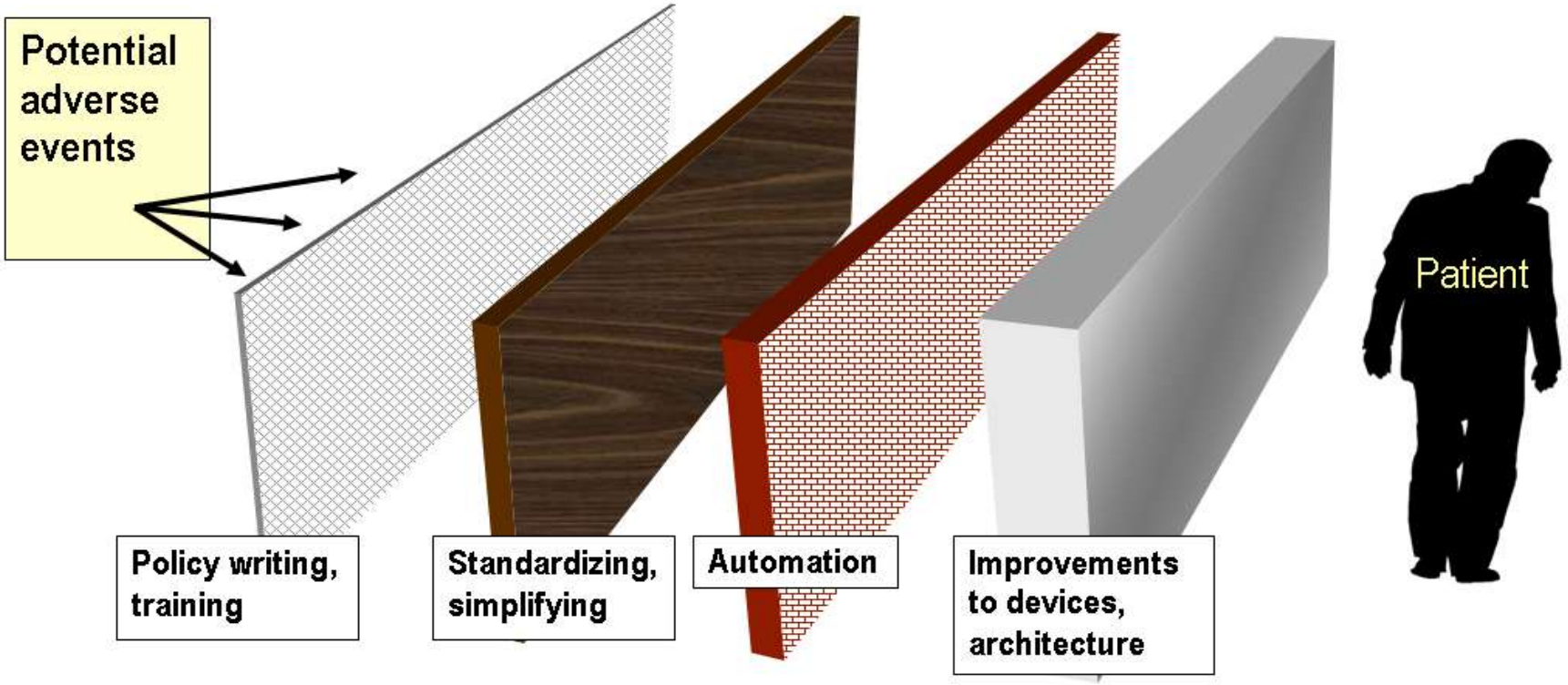
- Patient factors
- Provider factors
- Task factors
- Technology and tool factors
- Team factors
- Environmental factors
- Organizational factors

Reason's "Swiss cheese" model of accident causation



Successive layers of defences, barriers and safeguards *System defences*

Reason's - Defences



Source: Veteran Affairs (US) National Center for Patient Safety

Characteristics of high reliability organizations (HROs)

- Preoccupation with failure
- Commitment to resilience
- Sensitivity to operations
- A culture of safety

Key principles from HRO theory

- Maintain a powerful and uniform culture of safety
- Use optimal structures and procedures
- Provide intensive and continuing training of individuals and teams
- Conduct thorough organizational learning and safety management

The aircraft carrier: the prototypical HRO

Carriers achieve *nearly* failure-free record despite multiple hazards

Source: Gaba

Health care can learn from HROs

Although health care is different from other industries (e.g. people are not airplanes) we can learn:

- From their successes:
  - What factors make them work so well?

- From their failures:
  - How do disasters occur even in typically high reliability settings?

Summary

- Health care is complex
- When things go wrong, adopting a systems approach is far more productive for patient safety than a person approach