

# Human Factors 101

## Why is Human Factors important?

### Error Types

#### Human Error Types

Skill-based Errors are more likely to occur with experienced users while Mistakes are more likely to occur with novice users.

#### Skill-based Error

- Slip of Action – when a user fails to carry out a task as intended
- Memory Lapse – when a user forgets to carry out a task

#### Mistake or Thinking Error

- Rule-based error – when a user applies know-how of another situation to a novel situation
- Knowledge-based error – when a user has insufficient training or resources to correctly complete the protocol

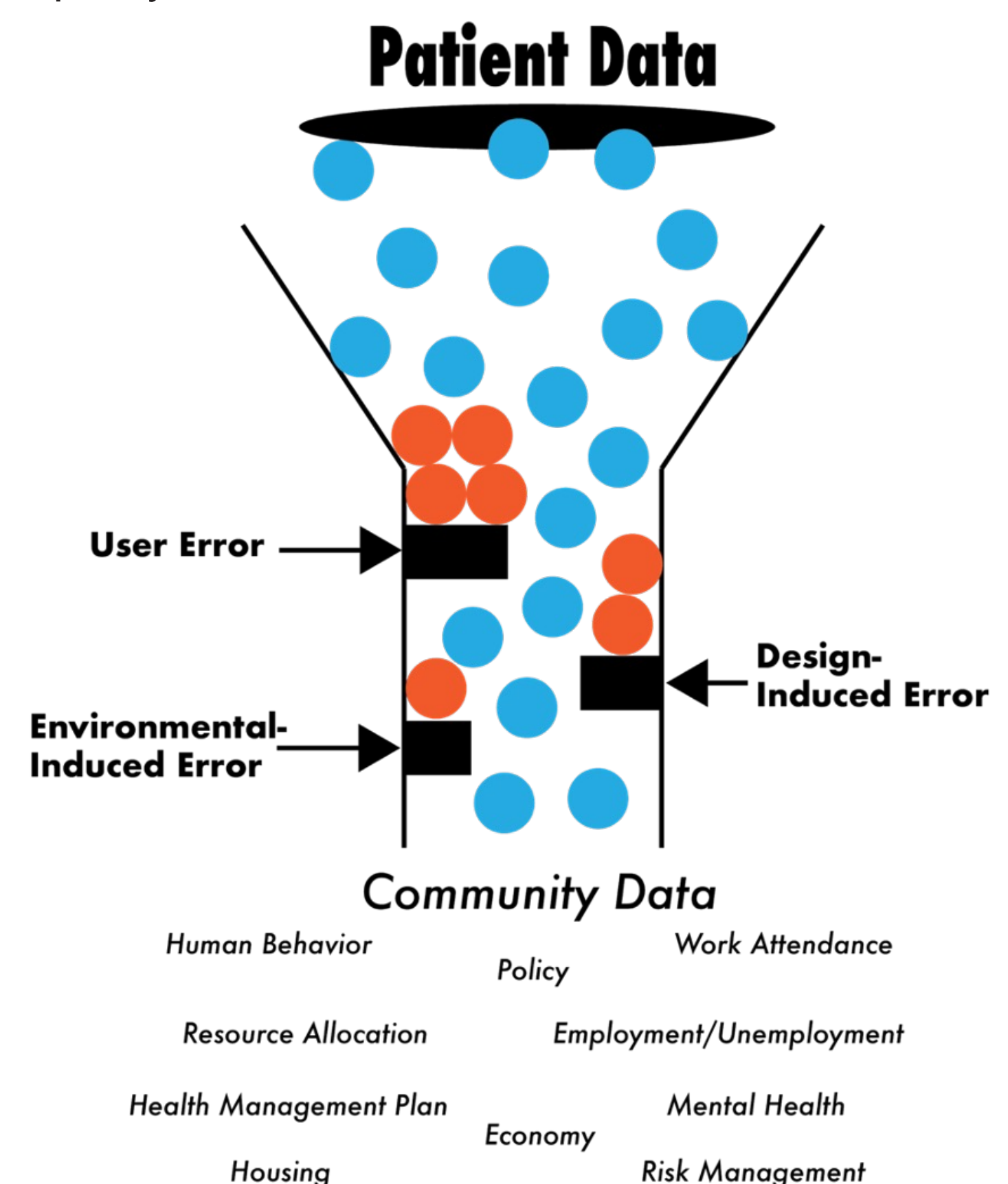
**Design-Induced Error or Latent Human Errors** are errors that can be attributed to poor design. Design-induced error is largely avoidable with human factors consideration.



The images show one of the first human factors driven changes to airplane controls. Pilots would frequently activate the wrong controls upon landing. To avoid this, critical controls were given different shapes and feels. These controls are for a plane designed in 1939 and used in WWII starting in 1942.

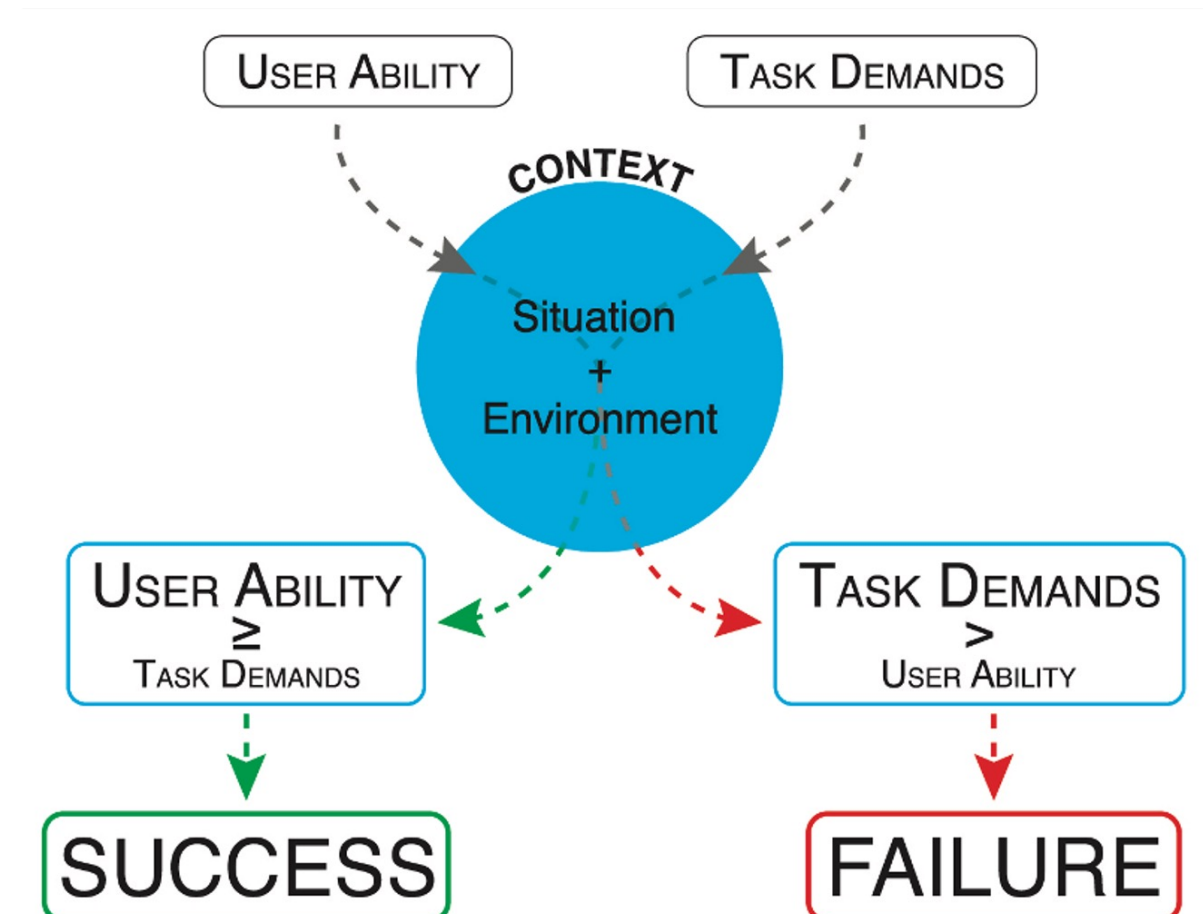
### Importance of HF in diagnostic testing

Testing errors, whether a result of user error, design error, or environmental impact, can lead to incorrect results. This affects other parts of the system, including behavior of the patient, resource allocation, and policy.



### Use Case

Protocol or process should be within user's ability. Task demands must not exceed the user's ability within the context of use.



Human Factors is concerned with the application of what we know about people, their abilities, characteristics, and limitations to the design of equipment they use, environments in which they function, and jobs they perform.

-Human Factors and Ergonomics Society