NHS

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The Unreliable Component:

User and equipment errors the Human Factor

Mark Hellaby NWSEN Manager @NWSEN

"To err is human ....."

Harm events and humans

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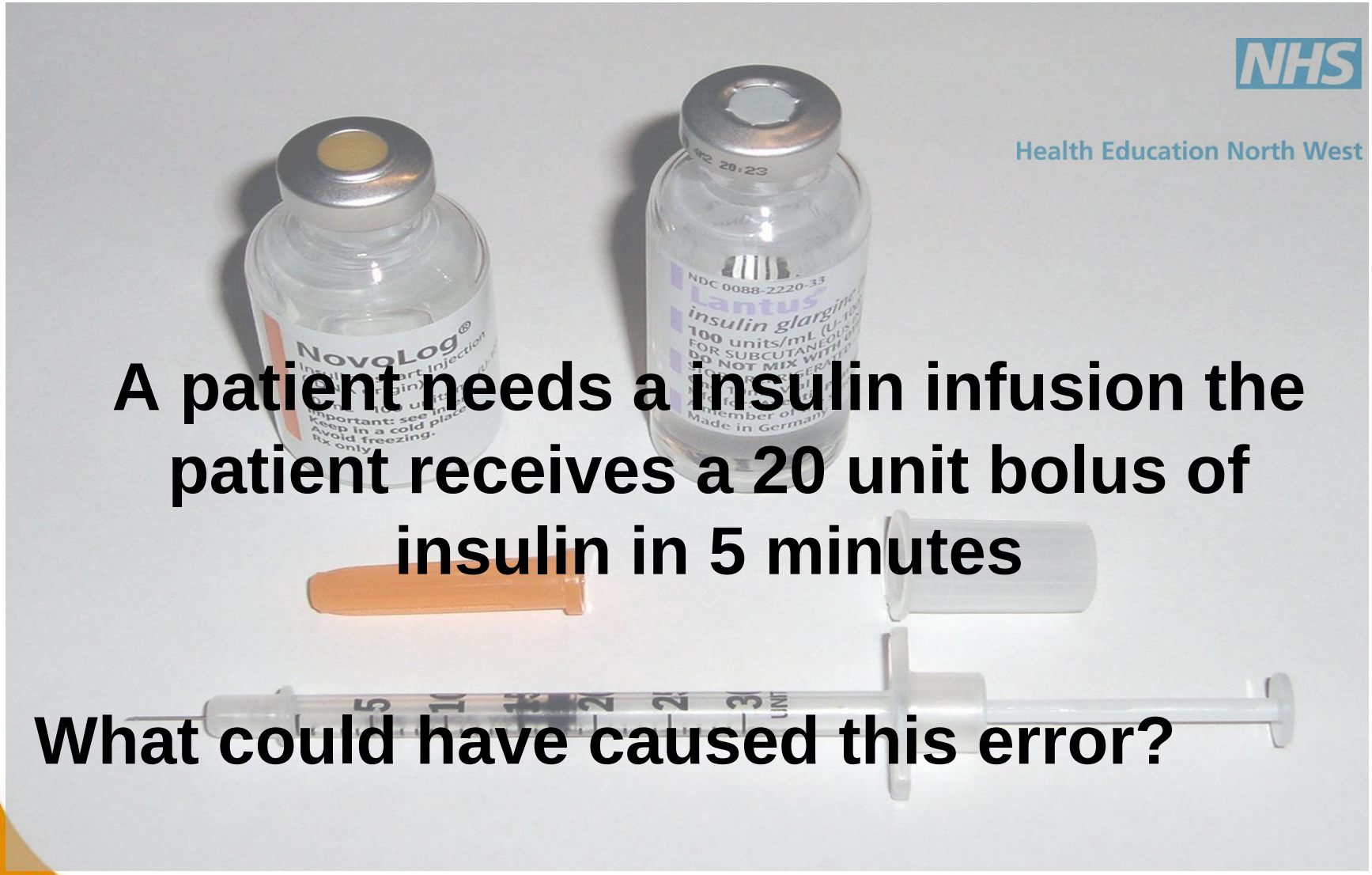
Medical Device Errors

Last Ten Years…..

2,300 Deaths
22,000 Serious Injuries

MHRA suggests may be 5 times more
11,500 Deaths
110,000 Serious Injuries

Minor Injuries ?
Near miss ?
2nd Victim



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A patient needs a insulin infusion the patient receives a 20 unit bolus of insulin in 5 minutes

What could have caused this error?

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National Patient Safety Agency, 2008

80% of errors are attributable to human factors, at the individual level, the organisational level, or more commonly both

Error sources - in equipment

- Design
- Building
- Training
- Use
- Monitoring
- Cleaning / storage
- Maintenance

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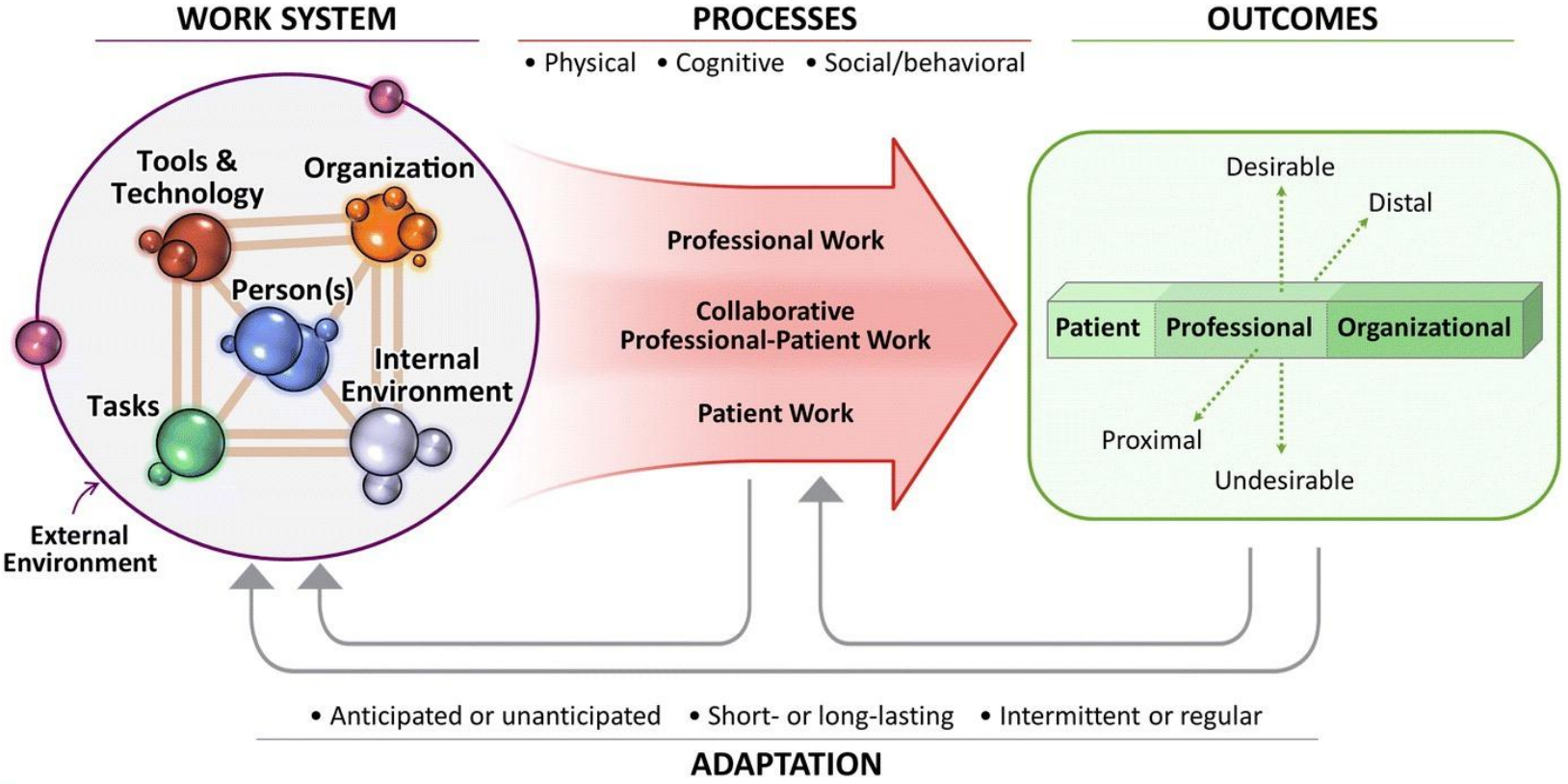

System Engineering Initiative for Patient Safety - Carayon et al., 2006

Causes of human error

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- Active Errors [sharp]

Mistakes (rule/knowledge based)

Slips & Lapses (skills based)

Violations (routine, situational or exceptional)

- Latent Errors [blunt]

Organisational

- Latent and Active

How common are these errors?

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Commonest error

Slip or lapse (53%)

Rothschild et al 2005

Why include human factors ???

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Shepard RN (1981) Psychological complementarity. In: Kubovy M & Pomerantz JR (eds) Perceptual organization. 279–342. Hillsdale, NJ: Lawrence Erlbaum Associates

Even when we are wrong we can't change what we see

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One of these things is not like the others.
Sulfate Injection ephedrine sulfate 30 mg in 1 mL
Sulfate Injection ephedrine sulfate 30 mg in 1 mL
Ephedrine Sulfate Injection ephedrine sulfate
DBL Ephedrine Sulfate Injection ephedrine
HEPARIN SODIUM (porcine mucous) 5,000 I.U. in 0.2 mL
DBL Ephedrine Sulfate Injection ephedrine
Making a serious drug error shouldn't be this easy
Join the campaign to make drug packaging safer
#EZDrugID

When are errors more likely ? (hungry, angry, late, tired, stressed, overloaded, complacent)

What evidence is there for failure / error ? (incidents, research, gut feeling, risk analysis)

How can I make this less error prone ? (eliminate, automate, standardise, training)

Has that helped ?

Human Factors Design

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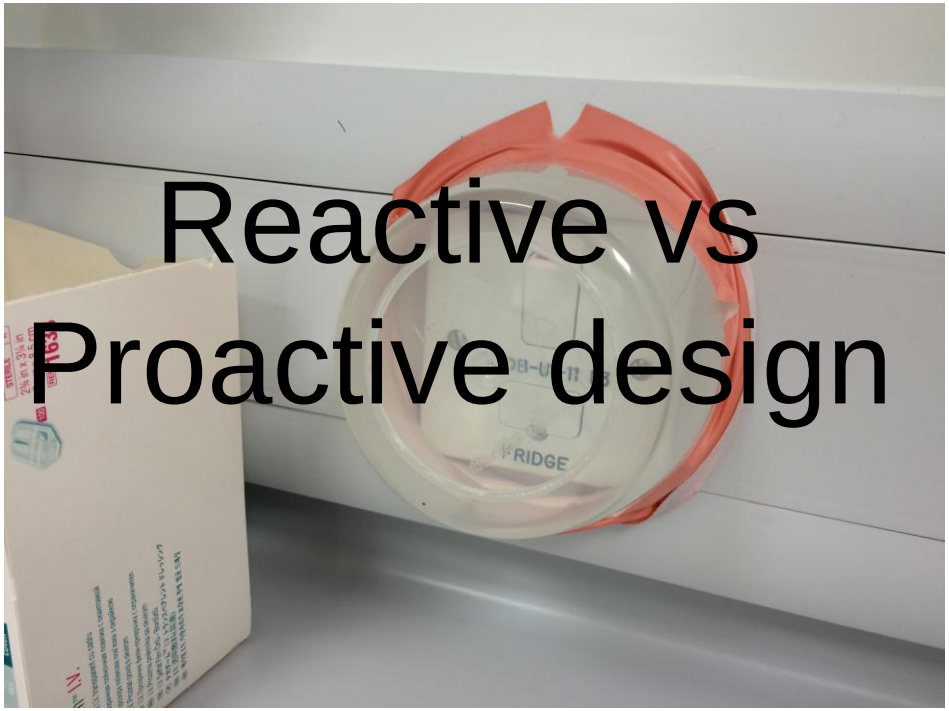
For systems, packaging, equipment, procedures, guidelines, hospitals, jobs, roles (everything !)



Questions?

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mark.hellaby@cmft.nhs.uk