ROLE OF NURSES IN PATIENT SAFETY DIAGNOSES & MITIGATION OF DIAGNOSTIC ERROR

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DISCLOSURES

- College of Emergency Nursing Australasia representative, Australian Resuscitation Council (unpaid)
- member, International Liaison Committee on Resuscitation (ILCOR) Basic Life Support taskforce (unpaid)
- Deputy Editor, Australasian Emergency Nursing Journal (honorarium)

- No financial conflicts

BACKGROUND

Diagnosis

- shift way from term ‘diagnosis’ to ‘health problem’
- diagnosis → diagnostic process
- *“the diagnostic process is a complex, patient-centered, collaborative activity that involves information gathering & clinical reasoning with the goal of determining a patient’s health problem”*

Diagnostic error

- *“failure to establish an accurate and timely explanation of the patient’s health problem(s) or communicate that explanation to the patient”*

Institute of Medicine 2015 Improving Diagnosis in Health Care

BACKGROUND

Indicators of High-Quality HealthCare

- safe: avoiding injuries from the care that is intended to help patients
- effective: providing services based on scientific knowledge, refraining from services not likely to benefit
- patient-centred: care that is respectful of & responsive to individual preferences, needs, and values
- timely: reducing waits & sometimes harmful delays
- efficient: avoiding waste - equipment, supplies, ideas, & human resources
- equitable: providing care that does not vary in quality because of personal characteristics (gender, ethnicity, geography, and socioeconomic status)

Institute of Medicine 2001 Crossing the Quality Chasm: A New Health System for the 21st Century

BACKGROUND

Contributing factors to diagnostic error

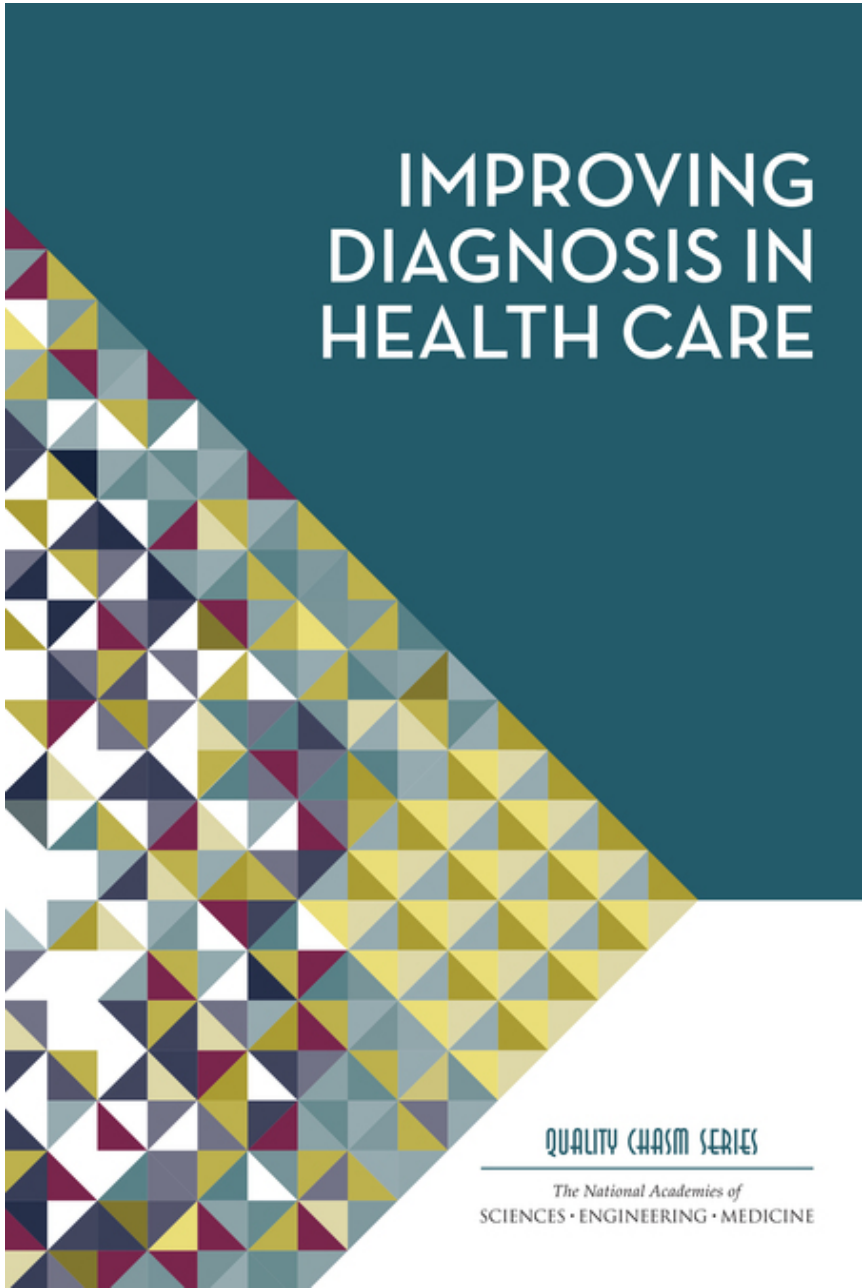
- patient & family factors: non-specific symptoms, communication challenges, preferences, dislikes, cultural considerations
- clinician factors: experience, educational preparation, stress, fatigue, professional silos, decision biases (cognitive dispositions to respond)
- perceptions of diagnosis: static vs dynamic, potential for evolution, misdiagnosis viewed as negative
- system factors: time pressure, interruptions, competing priorities, compliance vs safety & quality
- diagnostic tests: sensitivity & specificity limitations, test results vs patient's clinical status

BACKGROUND

Three central tenets

- diagnostic error is an underappreciated cause of harm in healthcare
- patients are central to the solution
- diagnosis is a collaborative effort

"…. nurses are often not recognized as collaborators in the diagnostic process, despite their critical roles in ensuring communication, care coordination, and patient education; monitoring a patient's condition; and identifying and preventing potential diagnostic errors"



BACKGROUND

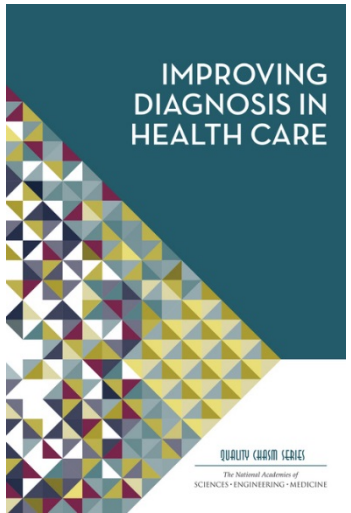
Conceptual model

- *"diagnosticians, or those who make diagnoses, such as physicians, APNs, & PAs"*

and

- *"health care professionals who support the diagnostic process, such as nurses, pharmacists, laboratory scientists, radiology technologists, medical assistants, and patient navigators"*

FIGURE 4-2 Teamwork in the diagnostic process includes the collaboration of a patient and his or her family members, diagnosticians, and health care professionals who support the diagnostic process.



ROLE OF NURSES

Nurses

- are the largest component of the health workforce
- have greatest bedside presence of any professional group
- are responsible for structures, processes & outcomes of care 24/7
- have key patient safety responsibilities
    - surveillance
        - accurate measurement & interpretation of clinical data
        - data driven decision making
    - symptom management
    - prevention of complications & adverse events

BACKGROUND

Safe healthcare is a team sport … patients are safer when nurses

- have appropriate nursing workloads [1,3]
  - ≤6 patients per RN (compared to ≥ 10 patients per RN)
    - 20% ↓ risk of death in medical wards (RR 0.80, p<0.001)
    - 17% ↓ risk of death in surgical wards (RR 0.83, p=0.049)
  - for each additional patient = 7% ↑ risk of inpatient death <30 days (OR=1·068, 95% CI 1·031–1·106)
- are well educated [1,2,3,4]
  - ↑ degree prepared nurses (RNs) = ↓ mortality
  - every 10% ↑ in BN RNs = 7% ↓ risk of inpatient death <30 days (0·929, 0·886–0·973)
- have effective inter-professional relationships [5,6]
- have appropriate skill mix [7,8,9]
  - ↑ proportion of RNs = ↓ LOS, ↑ pain management
    = ↓ infections (pneumonia, UTI, blood-stream infections), ↓ GI bleeding,
    = ↓ falls, ↓ medication errors

[1] Griffiths et al. 2015 *BMJ Open* [2] Aiken et al. 2003 *JAMA* [3] Aiken et al. 2014 *Lancet* [4] Tourangeau et al. 2002 *Can J Nurs Res* [5] Estabrooks et al. 2005 *Nurs Res*
[6] Riskin et al. 2015 *Pediatrics* [7] Needleman et al. 2002 *NEJM* [8] McGillis Hall et al. 2003 *Medical Care* [9] Seago et al. 2001 *Health Serv Res*

NURSES & DIAGNOSIS

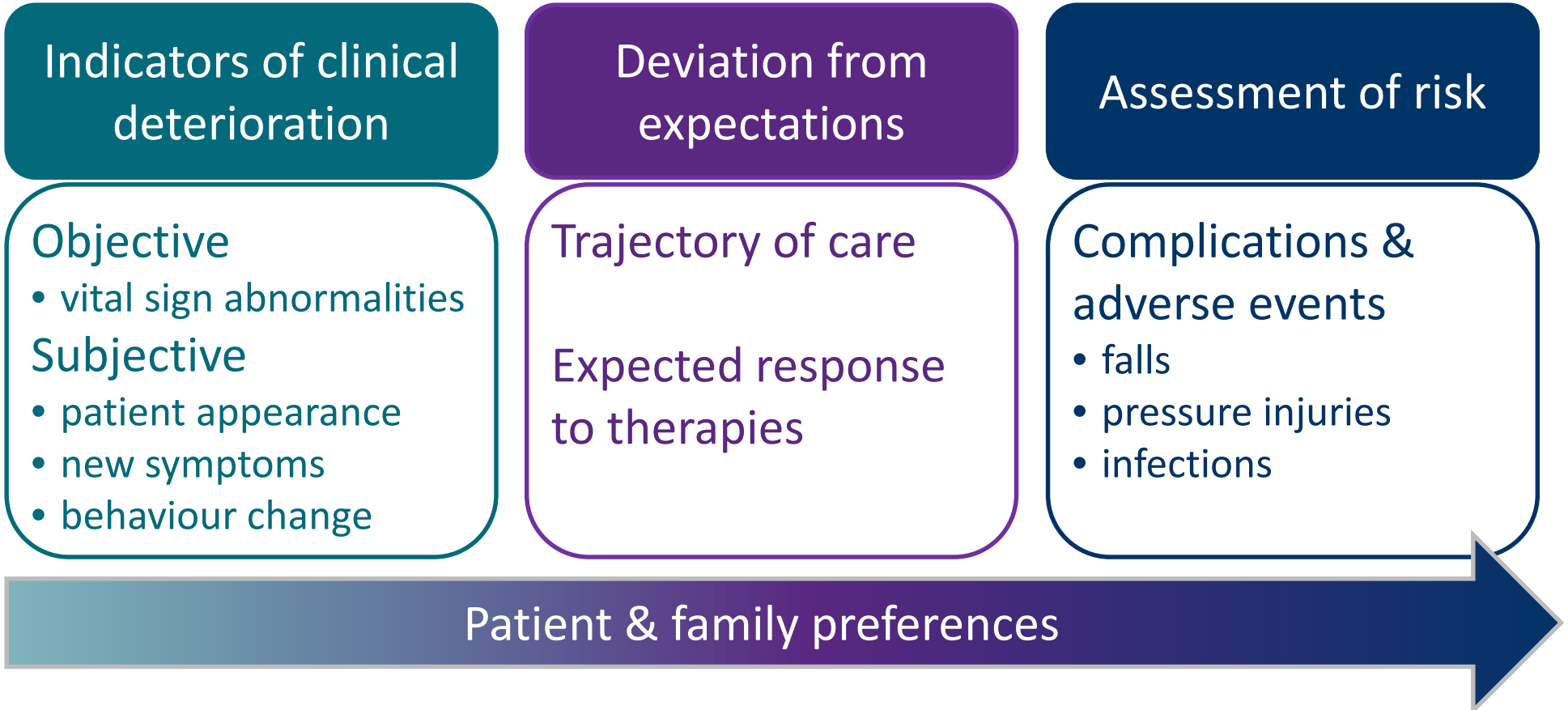
Traditional notion of diagnosis

- diagnosis of specific conditions
- based on clinical, biochemical and radiological criteria
- traditionally the domain of medicine …. now seen as a collaborative endeavour

NURSES & DIAGNOSIS

Nurses diagnose patient safety states

- deterioration, recovery & wellness
- do not fit traditional notion of diagnosis = both processes & outcomes



NURSES & DIAGNOSTIC ERROR

JCN Journal of Clinical Nursing

Journal of Clinical Nursing

REVIEW

Nurses' role in medical error recovery: an integrative review

Theresa A Gaffney, Barbara J Hatcher and Renee Milligan

JONA
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THE JOURNAL OF NURSING ADMINISTRATION

Medical Errors Recovered by Critical Care Nurses

Patricia C. Dykes, RN, DNSc
Jeffrey M. Rothschild, MD, MPH
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ELSEVIER

Applied Nursing Research 19 (2006) 70–77

Applied Nursing Research

www.elsevier.com/locate/apnr

Original article

Strategies used by nurses to recover medical errors in an academic emergency department setting

Elizabeth A. Henneman, RN, PhD[a,*], Fidela S.J. Blank, RN, MN, MBA[b,1], Anna Gawlinski, RN, DNSc[c,2], Philip L. Henneman, MD[d]

J Nurs Care Qual
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Nurses' Experience of Medical Errors

An Integrative Literature Review

Erica J. Lewis, PhD, RN;
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Challenges in the Critical Care Workplace

STRATEGIES USED BY CRITICAL CARE NURSES TO IDENTIFY, INTERRUPT, AND CORRECT MEDICAL ERRORS

By Elizabeth A. Henneman, RN, PhD, CCNS, Anna Gawlinski, RN, DNSc, Fidela S. Blank, RN, MBA, Philip L. Henneman, MD, Deovina Jordan, PhD, MD, MSN, MPH, RN-BC, and Janice B. McKenzie, RN

NURSES & DIAGNOSTIC ERROR

Error recovery

Identify

Disrupt

Correct

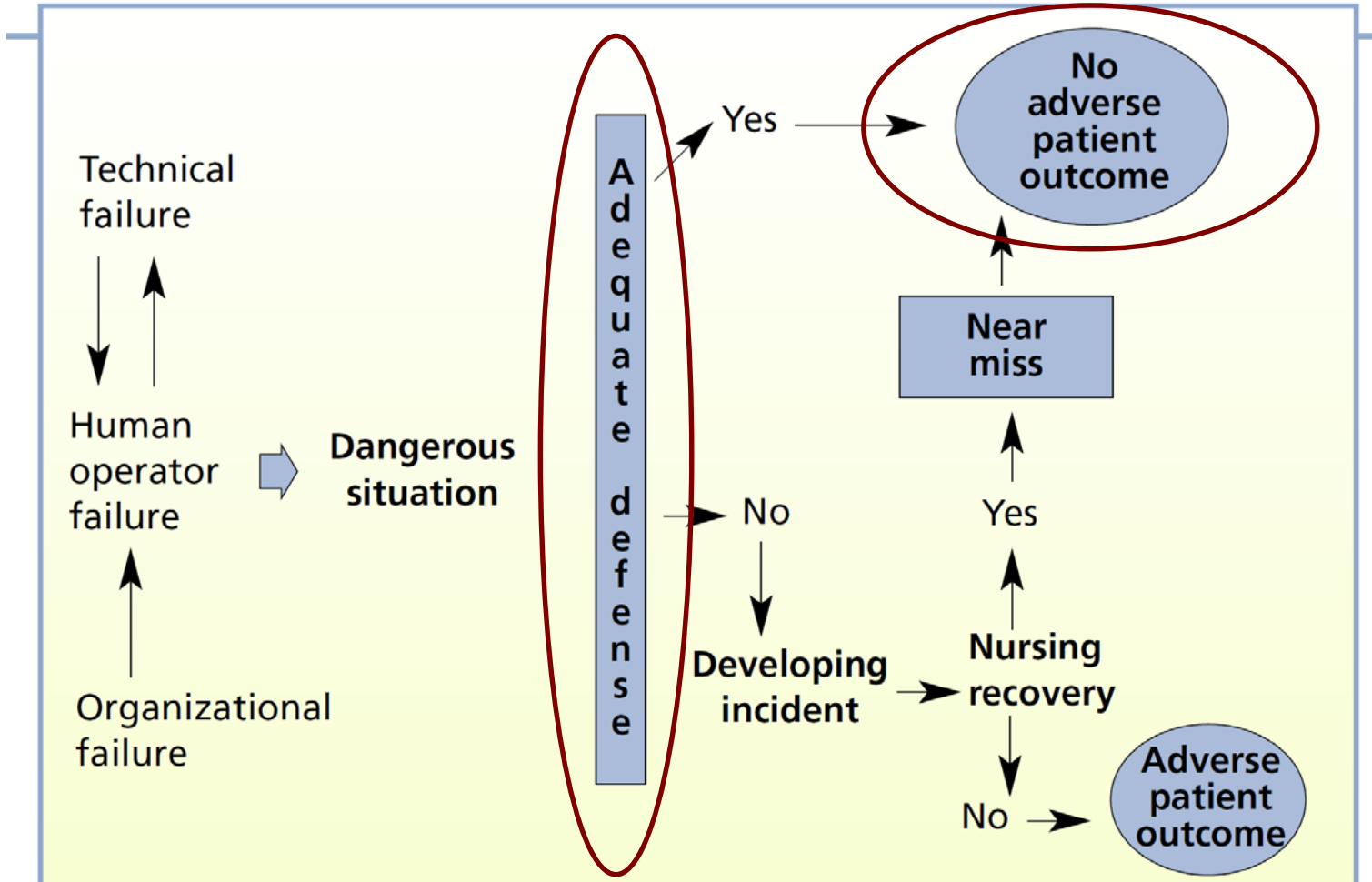

Figure Modified Eindhoven model of error recovery.

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NURSES & DIAGNOSTIC ERROR

Recovery of medical errors - ICU

- aim to establish type, frequency, & severity of medical errors recovered in ICU over 1 year
- survey of 45 critical care RNs using Recovered Medical Error Inventory
- 18,578 medical errors were recovered
  - many related to diagnostic error

Table 2. Number of Recovered Medical Errors

Recovered Medical Error Inventory Item	Number Recovered[a]
Aversive symptoms mismanaged	1,386
Coexisting health issues mismanaged	1,053
Improper precaution technique used	1,013
Invasive monitoring or therapy incorrectly timed	870
Necessary medication titration not ordered	820
Physical examination absent or incomplete	816
Risky action could lead to potential complication	812
Prophylactic measures not ordered	800
Incorrect IV volume ordered	781
Vital signs interpreted incorrectly	779
Electrolyte replacement ordered incorrectly	751
Incorrect dose of medication ordered	729
Medical record used or interpreted incorrectly	716
Laboratory data used or interpreted incorrectly	709
Unsafe transfer decision made	706
Inappropriate medication not discontinued	706
Needed medication not ordered	679
Standardized protocol not adjusted	672
Order for diagnostic test delayed	645
Medication ordered for wrong patient	603
Inadequate technique used for invasive procedure	600
Clinical signs misinterpreted	513
Contraindicated medication ordered	508
EKG strip used or interpreted incorrectly	465
Malfunctioning device not identified	446

Dykes et al. 2010. *J Nurs Admin*

NURSES & DIAGNOSTIC ERROR

Recovery of medical errors – medical-surgical wards

- survey of 184 medical-surgical nurses
- 3,392 errors recovered over 3 months (~13,568 pa)
- ↑ education & expertise = ↑ error recovery
  - BN nurses* = 1.5x higher error recovery (IRR = 1.5, 95% CI: 1.1-1.2, *p* = 0.016)
  - MN & Doctoral nurses* = 1.9x higher error recovery (IRR = 1.9, 95% CI: 1.2-2.9, p ≤ 0.005).

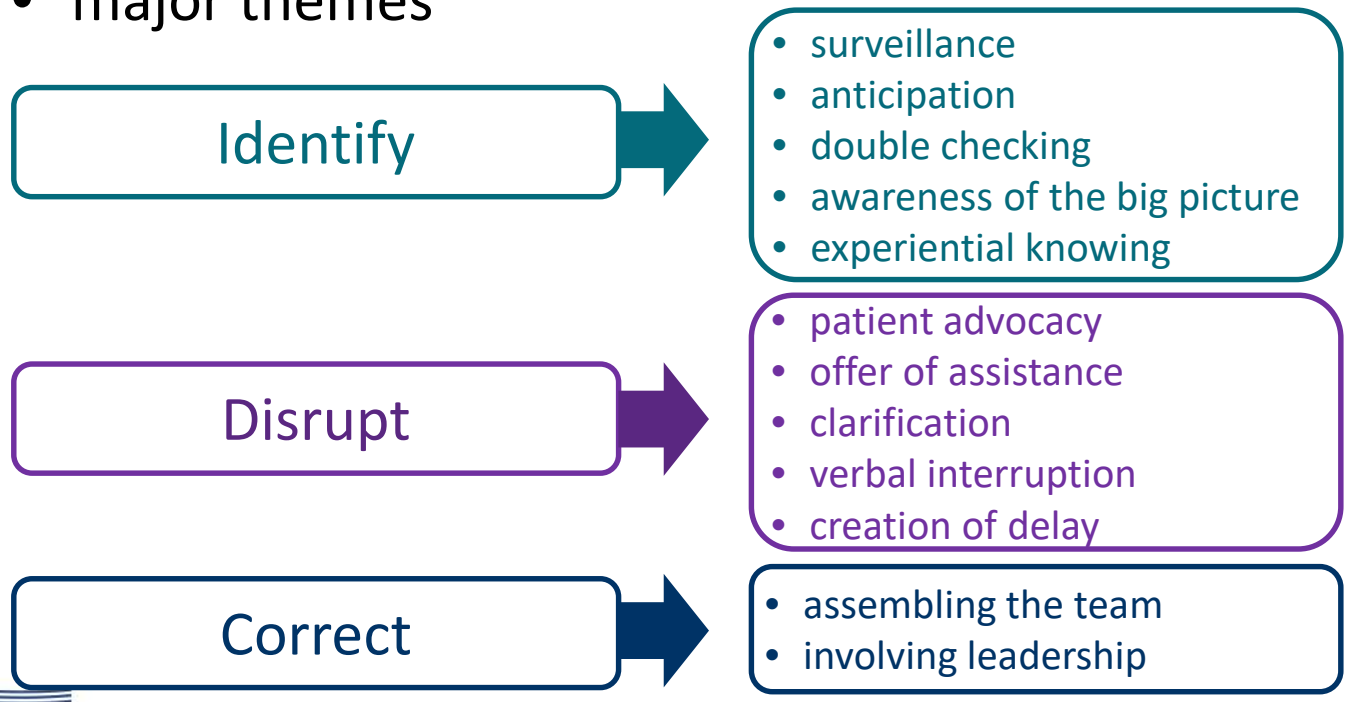
    * compared to associate or diploma trained nurses
  - expert nurses = 4x error recovery rate of novice nurses (IRR = 4.1, 95% CI: 1.9-9.1, p ≤ 0.001)
  - no significant relationships: age, hospital tenure, specialty tenure, certification, or personality
- ↑ workload = ↓ error recovery
  - nurses with higher patient ratios recovered fewer errors (rs = -0.280, p ≤ 0.001)

Gaffney et al. 2016. *Online J Issues Nurs*

NURSES & DIAGNOSTIC ERROR

Recovery of medical errors – emergency department

- aim to explore how nurses recover medical errors in the ED
- focus groups with 20 ED nurses
- major themes



Henneman et al. 2006. *App Nurs Res*

NURSES & DIAGNOSTIC ERROR

Diagnostic error recovery

Identify

Disrupt

Correct

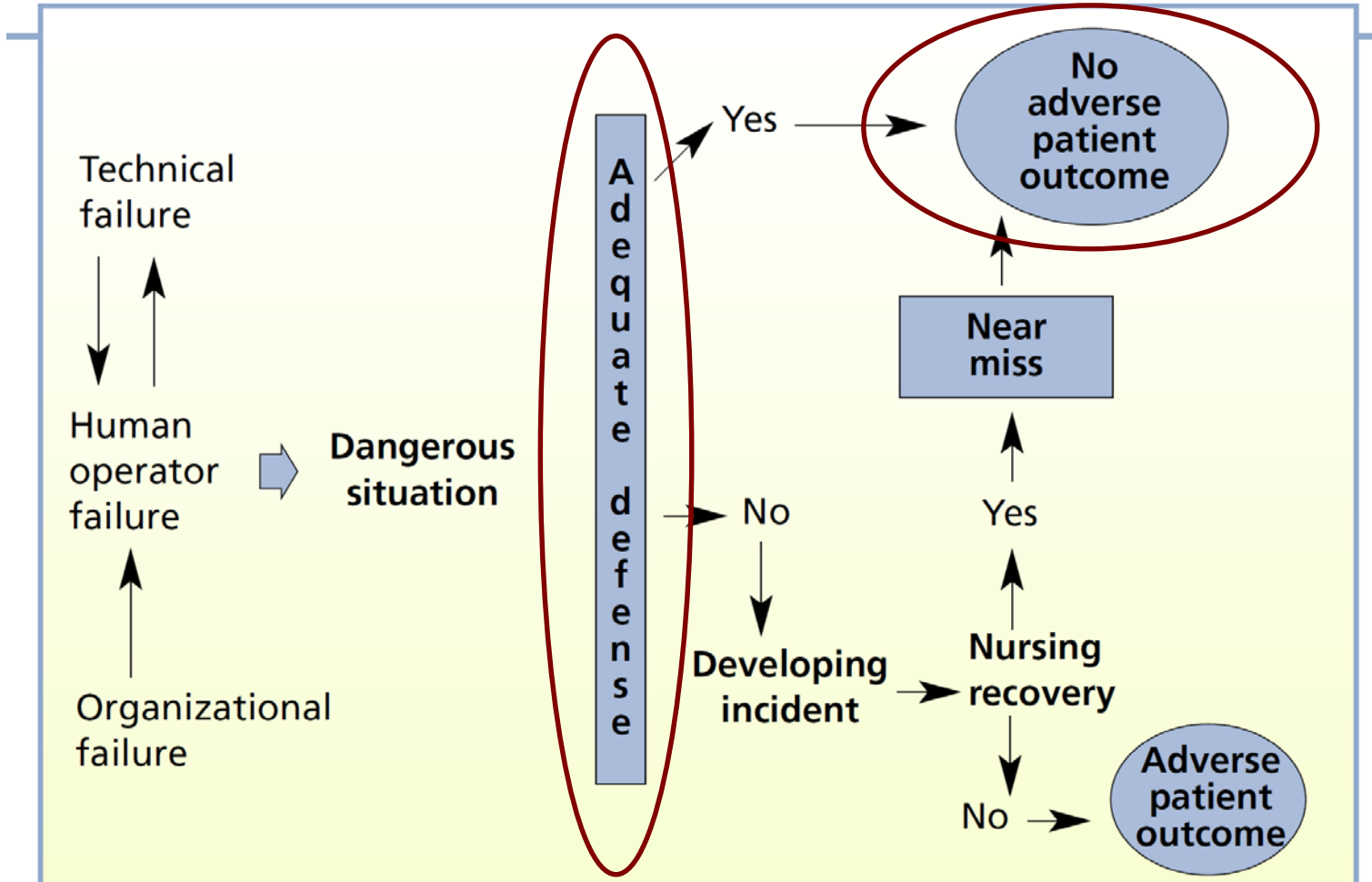


Figure Modified Eindhoven model of error recovery.

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NURSES: IDENTIFYING DIAGNOSTIC ERROR

Knowing
- patient & family
- clinicians & other team members
- environment
- organisation
- expected clinical course

Surveillance[1]
- purposeful & ongoing
- acquisition, interpretation, synthesis of patient data
- for clinical decision making

NOT monitoring
- clinician observes, measures, & records patient data

Questioning
- self
- patient & family
- other nurses
- other clinicians

Error detection by nurses is increased by positive work environment & relationships
- engaged nurses, collaborative relationships, nurses supported by management, strong safety culture

Error detection by nurses is decreased by task stressors
- frequent interruptions, time pressure, performance constraints & task uncertainty

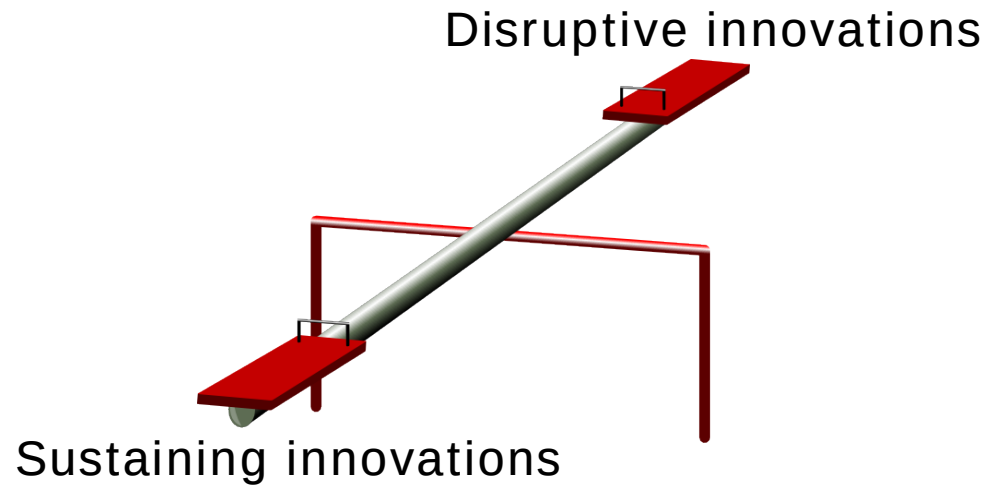
[1] Henneman EA et al. 2012 *Critical Care Nurse*

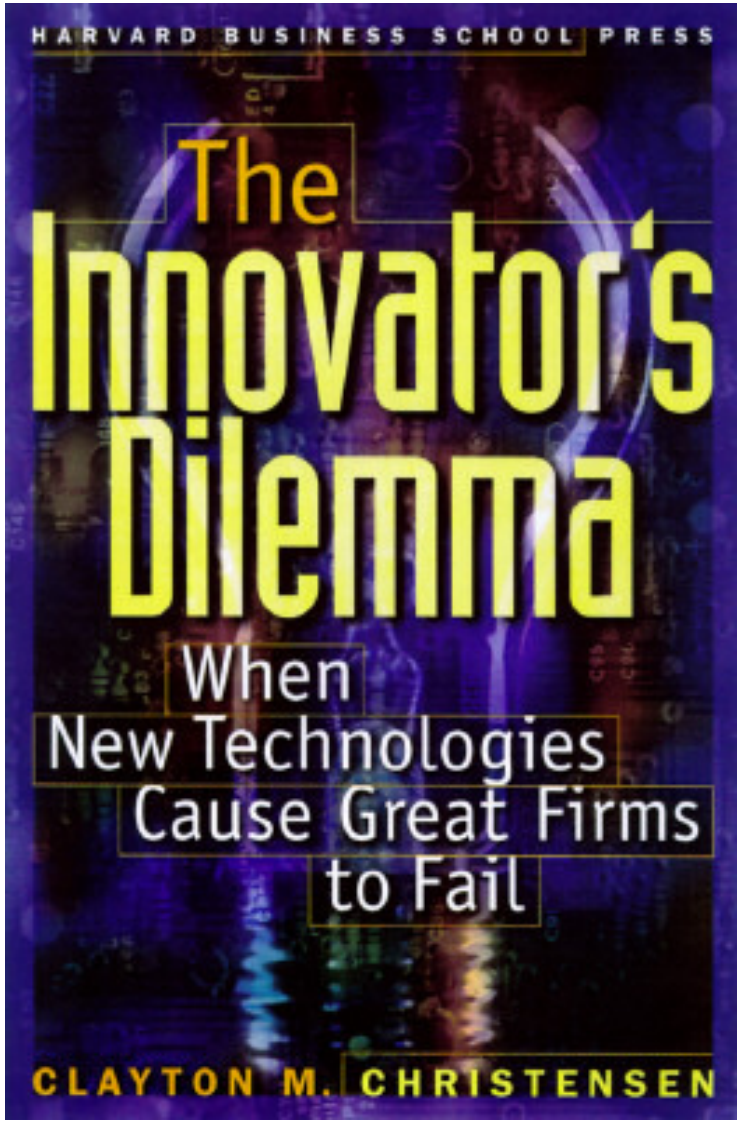
NURSES: DISRUPTING DIAGNOSTIC ERROR

NURSES: DISRUPTING DIAGNOSTIC ERROR

Disruptive Innovations

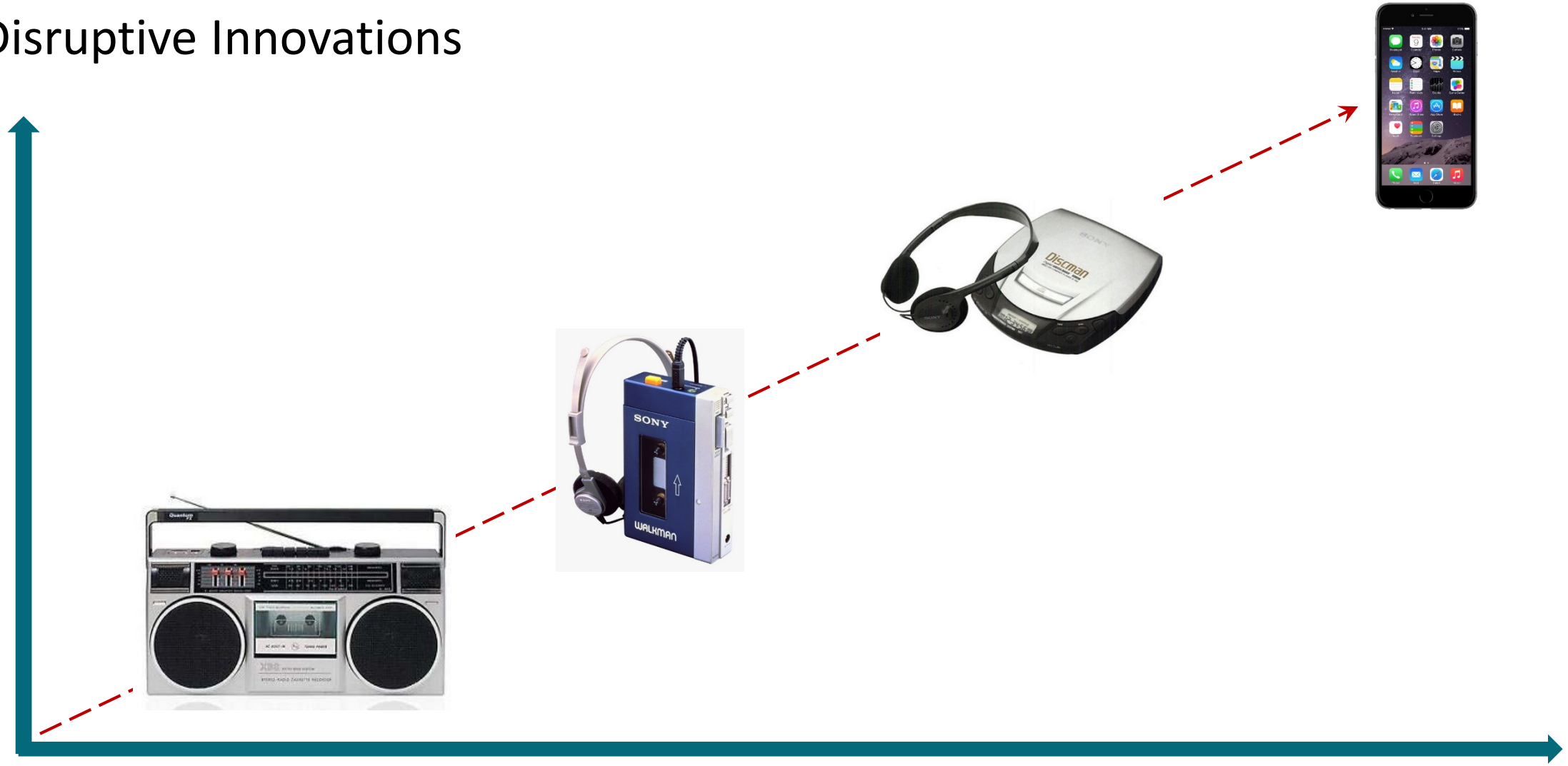
- an innovation that creates a new market by applying a different set of values, which ultimately (and unexpectedly) overtakes an existing market
- often used to describe technological advances





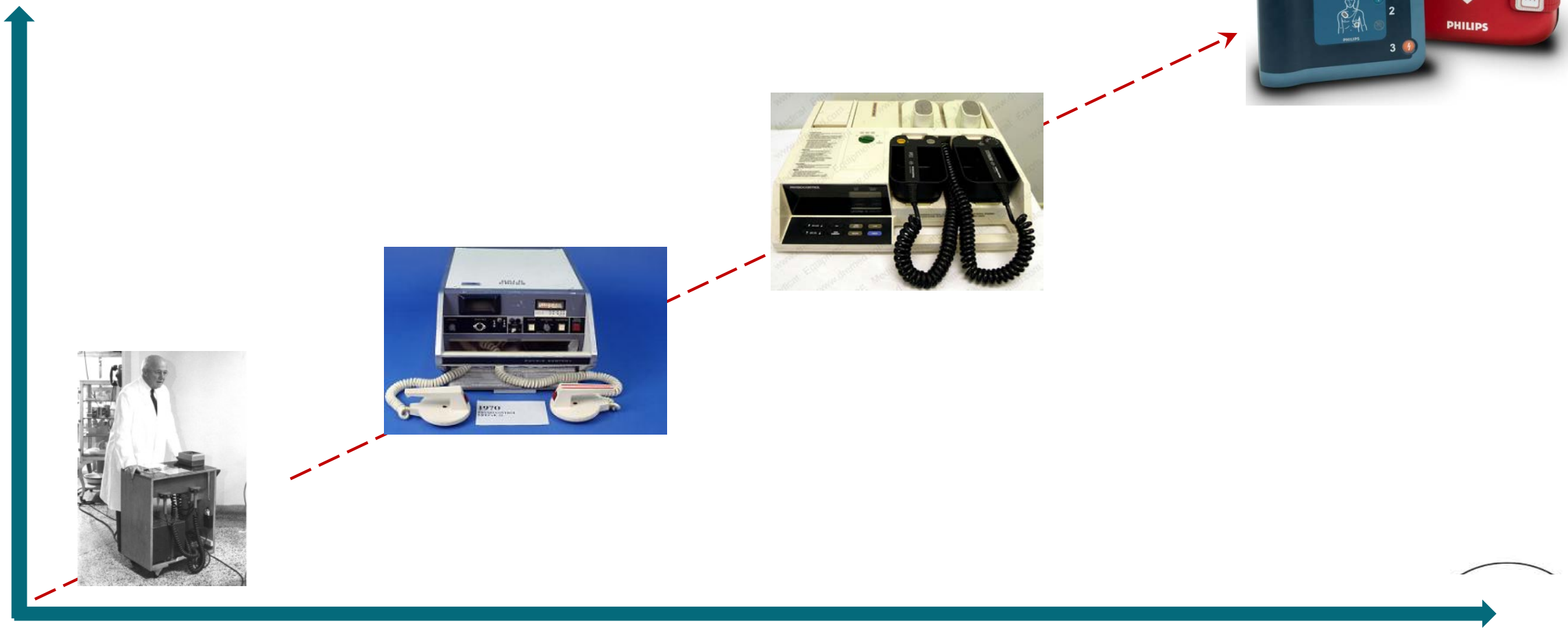
NURSES: DISRUPTING DIAGNOSTIC ERROR

Disruptive Innovations



NURSES: DISRUPTING DIAGNOSTIC ERROR

Disruptive Innovations



NURSES: DISRUPTING DIAGNOSTIC ERROR

Are nurses a disruptive innovation in diagnostic error?

1987

1990

1994

2007

NURSES: DISRUPTING DIAGNOSTIC ERROR

Collaboration & clear communication

Probe	Were you aware that this patient's respiratory rate is 32?
Alert	I'm concerned, their respiratory rate has been increasing all day
Challenge	We urgently need to work out why this patient is getting sicker
Emergency	We need to call …..

NURSES: CORRECTING DIAGNOSTIC ERROR

Correcting errors

- tenacity & perseverance
  - multiple calls or pages = something is wrong = pay attention if you are the receiver
- physical presence
  - nurses favour face-to-face communication
- confirming or reviewing the plan of care
- collaboration
  - offering options & alternatives
  - involving other team members

IT TAKES A TEAM TO KEEP PATIENTS SAFE

QUESTIONS? COMMENTS?

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