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Learning Objectives

1. Understand the problem of neurocognitive disorders in hospital settings

2. Describe co-design and testing for an ecologically valid novel technology for nurses in hospital settings

3. Identify how to help nurses engage in regular screening to monitor behaviours and implement evidence-based strategies

4. Explore factors impacting usability, feasibility for practice, and acceptability to nurses
INTRODUCTION

Neurocognitive disorders in hospital settings – patient and staff perspectives

Nurses report preventing and managing BPS is challenging

Patients with BPS have HIGH RISK of preventable harm in hospital
Evidence-based recommendations to reduce Behavioural & Psychological Symptoms (BPS) of neurocognitive disorders

Tailored, individual, evidence-based interventions can REDUCE BPS symptoms, risk of harm, and complications

HOWEVER strategies used in acute hospitals rarely adhere to best practice recommendations
Challenge of translating knowledge into clinical practice

GAP
Between knowledge and practice

KNOWLEDGE
Best available evidence for interventions which reduce symptoms/harm

PRACTICE
Everyday nursing care of people experiencing BPS in hospital
Using Clinical Decision Support (CDS) to bridge the knowledge-practice gap

**KNOWLEDGE**
Best available evidence for interventions which reduce symptoms/harm

**PRACTICE**
Everyday nursing care of people experiencing BPS in hospital

CDS technology can help BRIDGE the gap
Co-design with end users can help ensure CDS is acceptable, usable, feasible and relevant
Effective prevention/management of BPS

Knowledge of best practice

Effective prevention/management of BPS

Evaluate and adjust strategies

Identify & implement interventions

Individual patient information

Aligned with nursing process:
- Assessment, recommendations, evaluation
- Timely access at point of care
- Delivered via electronic device

Using CDS to support clinical decision-making
Aim and Objectives

To promote nurses’ use of evidence-based practice to prevent harm to people with BPS

1. Co-develop an App-based intervention to promote and sustain nurses’ use of best practice and consolidate knowledge at the point of care

2. Examine the App’s:
   - Acceptability
   - Usability
   - Feasibility
to nurses in hospital settings
Design
- Integrated KT approach
- Process and outcome evaluation

Setting
- Two inpatient wards / sites
- Different patient mix and models of care

Sample
- Co-design: 1 consumer, 2-5 nurses per ward
- Implement: All ward nurses
Stages of co-designing BRAIN-TRK

**Stage 1 Co-production**
Four months
- Baseline data collected
- App prototype co-designed

**Stage 2 Implementation**
Three months
- Used by staff in patient care
- Iteratively tested and refined

**Stage 3 Follow-up**
Two months
- Evaluation data collected
DATA COLLECTION

TO EVALUATE:

• Nurses’ engagement with the App
• Acceptability, usability, feasibility

1. 80.5 hours of naturalistic observations of patient care, for 38 patients
2. Usage data extracted from the App for 32 patients
3. Individual and focus group interviews with nurses and nurse managers, n=25

Collected during Stages 2 & 3
FINDINGS

Assess cognition  Implement strategies  Monitor changes

BRAIN-TRK App
Content  Structure  Workflow
Case study

BILL

PAST HX | DOB 28/2/1938
79 years | Male
COPD, IHD, diabetes
Peripheral neuropathy
and chronic pain
Anxiety and depression

Social History
Retired school teacher
Lives with family at home
Speaks Greek
Likes gardening, walking

Today
Bill has returned from a chest x-ray. You arrive to conduct an assessment and update his care plan. When you walk in, Bill is trying to climb out of bed. He lashes out at you, is restless, tells you to go away, he can do it. He tells you his name and birthdate.

Admission note:
decline in self-care,
hyperglycaemia,
altered behaviour
* Enter individual information
* Conduct 4AT cognitive assessment
* Enter behaviours, risk factors, symptoms
* Select intervention/s from those recommended

* Implement intervention/s and monitor Bill’s symptoms

* Evaluate interventions

* Repeat at least every 8 hours

* Track Bill’s outcomes

* Tailor and communicate ongoing care strategies
FINDINGS: App use during naturalistic observations

- 44.7% (n=17) of 38 eligible patients
- App in use at start of observation: 64.7% (n=11)
- 3 nurses observed: completing 4AT; assessing behaviour; selecting strategies
- 2 nurses observed: evaluating effectiveness

Of the 17 patients:
- 52.9% (n=9) had dementia
- 52.9% (n=9) had delirium
- 35.3% (n=6) had other cognitive impairment

Most common BPS:
- Confusion 76.5% (n=13)
- Wandering 35.3% (n=6)
- Climbing 35.3% (n=6)
FINDINGS: App usage data during implementation

Nurses used the App with
- Total 32 patients

ALL patients had 4AT
Total 105 completed
Mean score 5.69
(possible delirium +/- cognitive impairment)

Preferences entered for:
Likes: 84.4% of pts
Dislikes: 65.7% of pts

Total 146 risks for
31 patients
Wandering 33.6%
Aggression 31.5%
Elimination 29.5%

99 strategy sets
Rounding 84.8%
Therapeutic 64.6%
Physical ass. 55.6%

0-10 strategies evaluated per pt
FINDINGS: Acceptability, usability and feasibility of BRAIN-TRK

ACCEPTABILITY
Enhanced by:
- Familiarity with the App
- Perceived benefits

Reduced by:
- Increased workload/time
- Inconsistent use by peers
- Perceived pressure to use
- Resistance to change

USABILITY and FEASIBILITY
Enhanced by:
- Useful and usable content and design
- Experiencing effectiveness of App

Reduced by:
- Unclear expectations & lack of familiarity
- Device-related factors
- Difficulty fitting App into usual workflows
CONCLUSION

Contribution to practice and scholarship

The BRAIN-TRK App

- Evidence-based point-of-care tool to support nurses’ decision-making, address BPS, prevent harm & consolidate knowledge
- Co-designed by nurses and consumers for hospital settings

Recommended for use with:
Patients in hospital with one or more risk factors for BPS including: aged 65+ years, cognitive impairment / delirium, severe medical illness, altered behaviour
CONCLUSION

Evaluation, limitations and future research

The BRAIN-TRK App assisted nurses to manage BPS
- Helped nurses effectively screen and monitor patients at risk
- Provided immediate advice on implementing evidence-based interventions

Future research
- Address study limitations
- Refine content & workflows
- Test impact & sustainability
- Integration with Electronic Medical Record
Acknowledgements

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