Webinar Series
August 29, 2018

Anticipatory Long-term care Electronic Resident Triage Tool (ALERT) for Canadian Long-Term Care Homes

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Canadian Frailty Network | Réseau canadien des soins aux personnes fragilisées

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Welcome

- **Today's webinar will be hosted by CFN's Assistant Scientific Director: Perry Kim**
- **Q&A session: Please submit your Qs online during presentation**
- **We will answer as many Qs as time permits**

Reminder: Survey & Webinar

- **Survey will pop up on your screen after webinar**
  - **Feedback on how to improve webinar series**
- **Webinar slides & video available for viewing online within 1-2 days at:**
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Reminder:
Upcoming Webinars

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- **Wednesday, September 12, 2018 at 12 noon ET**

  Mixed Methods feasibility study of group peer support interventions to engage the public in ACP – CFN-funded Catalyst Grant Program – Doris Barwich and Eman Hassan, BC Centre for Palliative Care

- **Wednesday, November 21, 2018 at 12 noon ET**

  A National Comparison of Intensity of End-of-Life Care in Canada: Defining Changing Patterns, Risk Factors and Targets for Intervention – CFN-funded Core Research Grant Program – Robert Fowler and Andrea Hill, Sunnybrook Research Institute

CFN 2018 National Conference

- **September 20-21, 2018 in Toronto, Ontario**
- **Includes the 2018 Innovation Showcase (Thursday, September 20)**
- **To register and view more details, visit our conference website: http://www.frailtyconference.ca/**

Presenters

Anticipatory Long-term care Electronic Resident Triage Tool (ALERT) for Canadian Long-Term Care Homes

- Clinical Assistant Professor in the Section of General Internal Medicine at the University of Calgary
- General Internal Medicine Specialist with Alberta Health Services
- Medical Lead for the Seniors, Palliative and Continuing Care portfolio in the Calgary Zone and for the Complex Care Hub program

Michelle Grinman, MD, FRCPC, MPH

- Member of the Canadian Institutes on Health Research (CIHR) Advisory Board for Cancer
- Leads the CLEAR OUTCOMES (Connecting Leadership, Education & Research) research program
- Leads the Older Persons' Transitions in Care (OPTIC) research program

Greta Cummings, RN, PhD, FCAHS, FAAN

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Canadian Frailty Network | Réseau canadien des soins aux personnes fragilisées

Anticipatory Long-term care Resident Triage (ALERT) tool:

A Pilot Intervention Study of E-INTERACT in 4 Canadian Long-term Care Homes.

UNIVERSITY OF CALGARY

CANADIAN FRAILTY NETWORK WEBINAR

AUGUST 29, 2018

DR. MICHELLE GRINMAN, MD, FRCPC, MPH

DR. GRETA CUMMINGS RN, PHD, FCAHS, FAAN

UNIVERSITY OF ALBERTA

Conflicts of Interest

Funding: Canadian Frailty Network Catalyst grant 2015

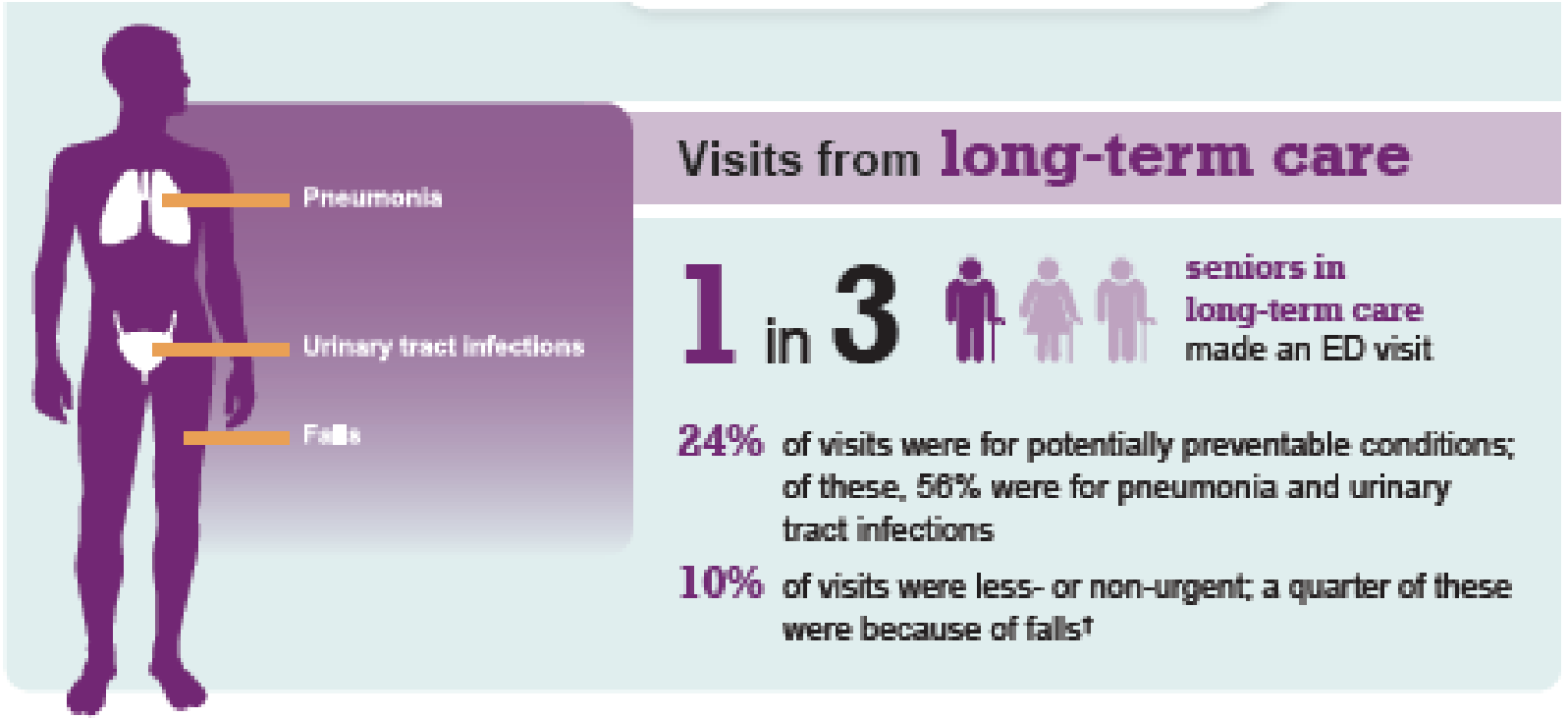
Dr. Grinman – none

Dr. Cummings - none

Objectives

1. Importance of proactive identification of residents at risk of health status decline
2. E-INTERACT tools – how they are designed and their purpose.
3. Lessons learned from implementing the E-INTERACT tools in Canadian long-term care homes

CIHI: Potentially Avoidable Hospitalizations from Long-term care



Range of the cost of a standard hospital stay between teaching hospitals

$4,100 to $11,000

depending on the hospital's specialty

(Source: CIHI, 2016)

Choosing Wisely: Long-term care

‘Don’t send frail residents of a nursing home to the hospital, unless their urgent comfort and medical needs cannot be met in their care home.”

Long periods in an unfamiliar and stressful environment

http://www2.macleans.ca/2012/04/04/hospital-performance-is-all-over-the-map/

Long Term Care. Choosing Wisely. Available at: https://choosingwiselycanada.org/long-term-care/

Risks of Hospitalization for Older Adults

Transfers to hospital for assessment and treatment of a change in condition are often of uncertain benefit, and may result in increased morbidity:

- Delirium / Cognitive changes
- Hospital acquired infections
- Med side effects
- Lack of sleep
- Rapid loss of muscle strength while bedridden
- Increased falls

Increased risk of death within 3 months of hospitalization

Long Term Care. Choosing Wisely. Available at: https://choosingwiselycanada.org/long-term-care/
Canadian Insitute for Health Information. Patient Pathways: Transferring from Continuing to Acute Care. CIHI (Ottawa Ont, 2009)

Although some status changes are unexpected, many more can be predicted

From Choosing Wisely…

- Avoidable hospitalizations - Canadian study 47%; US study 39%

- In-house care→ receive more individualized care, better comfort & EOLC

- Establish clear understanding of patient's goals and wishes, taking into account current health status, values and preferences to reduce likelihood of inappropriate transfer.

- Goals should be discussed earlier and often with patient & family

Warning Signs: As residents become frail, they cannot overcome physical challenges…

Functional Changes (requiring more help)

- *Warn of disease progression & ↑ symptom burden*

Falls (suggests weakness is increasing, specially if resulting in hip #)

- *Consider this a symptom, not just an incident*

Delirium

- *Mind is affected by something that is affecting whole body*

New or worsening symptoms

- *Body warning us that something has changed*

Interventions to Reduce Acute Care Transfers

http://interact2.net/

•6 mo QIP designed to prevent ER transfers for LTC residents (both palliative and acute care) - 25 NHs in 3 states

•NP-led education, tools for assessment, communication & management
•Outcomes:
  •17% reduction in self-reported hospital admissions in these 25 NHs when compared to same 6 mo period 1 year prior
  •Comparison group (11 NHs) - 3% reduction in same time frame
  •6-month implementation cost was $7,700 per NH.

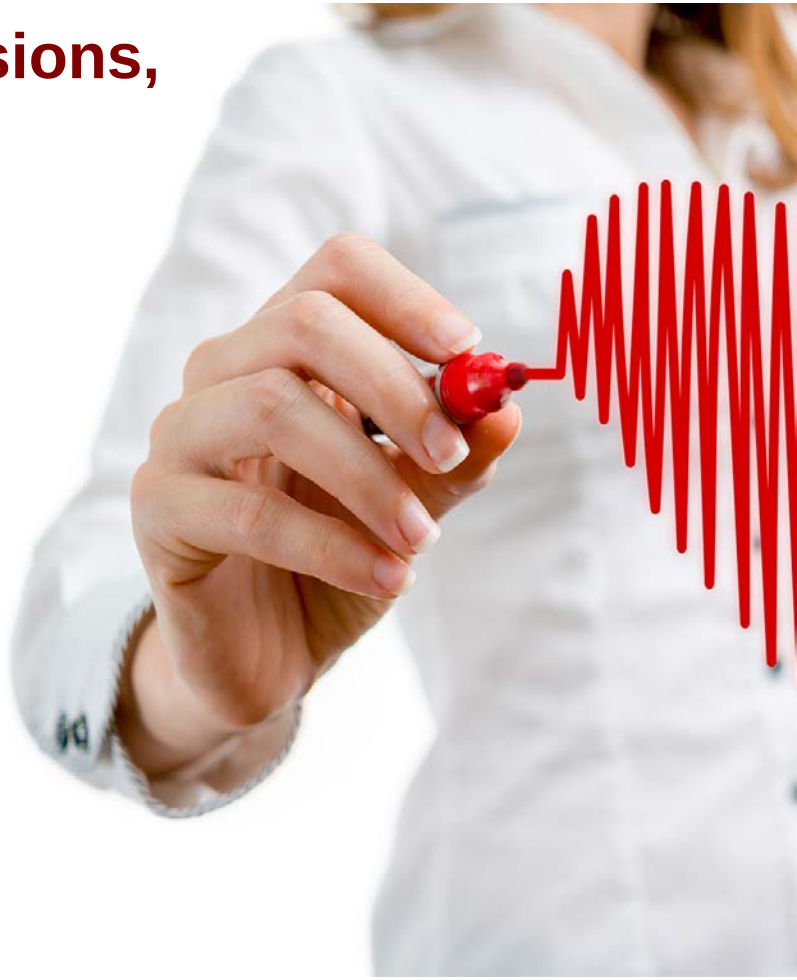
What is e-INTERACT?

- Joint initiative between Florida Atlantic University & PointClickCare
- Industry's 1st and only software design effort to embed the INTERACT processes and tools directly into the Electronic Health Record (EHR)
- NOT an adaptation or integration of paper-based templates

PointClickCare®

Process Benefits of eINTERACT

- **18% or more reduction in preventable hospital admissions, readmissions and ED visits**
- Standardized tools – tracking, process, and quality improvement
- All aspects of INTERACT QI Program embedded in PointClickCare EHR
  - Decision support tools (evidence based)
  - Care Paths
  - Hospitalization tracking tool
- ↓time / ↑ compliance → better outcomes



PointClickCare®

CARE PATH
Shortness of Breath (SOB)

INTERACT Version 3.0 Tool

Symptoms of Shortness of Breath*
- Difficult or labored breathing that is out of proportion to the resident's level of physical activity
- New complaint of SOB

Take Vital Signs
- Temperature
- BP, pulse, apical HR *(if pulse irregular)*
- Respirations
- Oxygen saturation
- Finger stick glucose *(diabetics)*

Vital Sign Criteria *(any met?)*
- Temp > 100.5°F
- Apical heart rate > 100 or < 50
- Respiratory rate > 28/min or < 10/min
- BP < 90 or > 200 systolic
- Oxygen saturation < 90%
- Finger stick glucose < 70 or > 300
- Accessory breathing muscle use
- Cyanosis
- New or worsening chest pains

YES → Notify MD / NP / PA

NO

Further Nursing Evaluation

Examine resident for:
- Cough with or without sputum production
- Abnormal breathing sounds *(wheezing, rales, rhonchi, etc…)*
- Edema*
- Change in mental status
- Inability to eat or sleep due to SOB

YES → Notify MD / NP / PA

NO

Consider Orders for:
- Portable chest X-ray
- Blood work *(Complete Blood Count, Basic Metabolic Panel)*
- EKG *(if available)*
- Bedside spirometry *(if available and no cognitive impairment)*

Evaluate Results
- Abnormal CXR suggestive of CHF, COPD, pneumonia, atelectasis, lung CA or pleural effusion
- WBC > 14,000 or neutrophils > 90%
- Critical values in blood count or metabolic panel
- EKG shows new changes suggestive of MI or arrhythmia

YES → Notify MD / NP / PA

NO

Manage in Facility
- Monitor vital signs and urine output every 4-8 hrs
- O2 supplementation as indicated
- Consider initiating or modifying dose of medications *(e.g. diuretics, steroids, nebulizers, etc…)*
- Respiratory therapy *(if available)*
- Ensure influenza and pneumococcal immunizations are up to date
- Encourage smoking cessation *(if applicable)*
- Update advance care plan and directives if appropriate

YES → **Monitor Response**
- Vital signs criteria met
- Worsening condition

CARE PATH *Change in Behavior*
Evaluation of Medical Causes of New or Worsening Behavioral Symptoms

INTERACT Version 3.0 Tool

New or Worsening Behavioral Symptoms
- Physical aggression *(e.g. bitting, hitting, kicking, spitting, etc…)*
- Physical symptoms, non-aggressive *(e.g. inappropriate disrobing or voiding, repetitious mannerisms, wandering or attempts to elope)*
- Verbal aggression *(e.g. cursing, screaming, etc…)*
- Verbal symptoms, non-aggressive *(e.g. repetitive calling out or requests for attention, constant complaining or whining, etc…)*
- Social withdrawal *(e.g. isolation, apathy)*
- Depression *(e.g. crying, hopelessness, not eating, multiple somatic complaints)*

Take Vital Signs
- Temperature
- BP, pulse, apical HR *(if pulse irregular)*
- Respirations
- Oxygen saturation
- Finger stick glucose *(diabetics)*

Vital Sign Criteria *(any met?)*
- Temp > 100.5°F
- Apical heart rate > 100 or < 50
- Respiratory rate > 28/min or < 10/min
- BP < 90 or > 200 systolic
- Oxygen saturation < 90%
- Finger stick glucose < 70 or > 300

YES → Notify MD / NP / PA

NO

Further Nursing Evaluation
- Mental Status
- Functional Status
- Cardiovascular
- Respiratory
- Gastrointestinal / abdomen
- Genitourinary
- Skin

Evaluate Symptoms and Signs*
- Danger to self or others
- Suicidal ideation
- Symptoms or signs of pain
- Not eating or drinking at all
- Acute decline in ADL abilities
- Nausea, vomiting, diarrhea
- Abdominal distention or tenderness
- New cough, abnormal lung sounds
- New or worsened incontinence, pain with urination or blood in urine
- New skin condition *(e.g. rash, redness suggesting cellulitis, signs of infection around existing wound or pressure ulcer)*

YES → Notify MD / NP / PA

NO

Consider Orders for:
- Portable chest X-ray
- Urinalysis and C&S if indicated
- Blood work *(Complete Blood Count, Basic Metabolic Panel)*

Evaluate Results
- WBC > 14,000 or neutrophils > 90%
- Infiltrate or pneumonia on chest X-ray
- Urine results suggest infection and symptoms or signs present

YES → **Monitor Response**
- Vital signs criteria met
- Worsening condition

Manage in Facility
- Monitor vital signs, fluid intake/urine output every 4-8 hrs for 24-72 hrs
- If on diuretic, consider holding
- Consider IV or subcutaneous fluids if needed for hydration
- Evaluate for unmet needs, environmental factors, other non-medical causes**
- Consider non-pharmacologic interventions *(e.g. sensory, environmental, exercise, others that have been effective for this resident in the past)***
- Update advance care plan and directives if appropriate

CARE PATH
Dehydration (potential for)

INTERACT Version 3.0 Tool

Change Noted in Resident at Risk for Dehydration
- Decreased oral intake over 48 hrs
- Multiple episodes of vomiting or diarrhea over 24-48 hrs*
- Dependent on others for fluids *(dementia, tube feeding)*
- Diuretic use
- Swallowing difficulties

Take Vital Signs
- Temperature
- BP, pulse, apical HR *(if pulse irregular)*
- Respirations
- Oxygen saturation
- Finger stick glucose *(diabetics)*

Vital Sign Criteria *(any met?)*
- Temp > 100.5°F
- Apical heart rate > 100 or < 50
- Respiratory rate > 28/min or < 10/min
- BP < 90 or > 200 systolic
- Oxygen saturation < 90%
- Finger stick glucose < 70 or > 300

YES → Notify MD / NP / PA

NO

Further Nursing Evaluation
- Mental Status
- Functional Status
- Cardiovascular
- Respiratory
- Gastrointestinal / abdomen
- Genitourinary
- Skin

Evaluate Symptoms and Signs**
- Acute mental status change
- Not eating or drinking at all
- Acute decline in ADL abilities
- New cough, abnormal lung sounds
- Nausea, vomiting, diarrhea
- Abdominal distention or tenderness
- New or worsened incontinence, pain with urination, blood in urine
- Very low urinary output
- New skin condition *(e.g. rash, redness suggesting cellulitus, signs of infection around existing wound/pressure ulcer)*

YES → Notify MD / NP / PA

NO

Consider Orders for:
- Portable chest X-ray
- Urinalysis and C&S if indicated
- Blood work *(Complete Blood Count, Basic Metabolic Panel)*

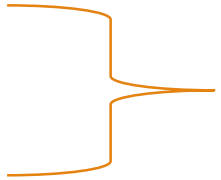
Evaluate Results
- WBC > 14,000 or neutrophils > 90%
- Infiltrate or pneumonia on chest X-ray
- Urine results suggest infection and symptoms or signs present

YES → **Monitor Response**
- Vital signs criteria met
- Worsening condition

Manage in Facility
- Monitor vital signs and urine output every 4-8 hrs
- If on diuretic, consider holding
- Offer frequent fluids
- If on tube feeding, give more water with flushes
- Consider IV or subcutaneous fluids
- Update advance care plan and directives if appropriate

ALERT (Anticipatory LTC Electronic Resident Triage) project is a partnership between:

- Researchers/clinicians from 4 universities
  - **University of Calgary**
  - **University of Alberta**
  - **York University**
  - **University of Toronto**



Research Ethics Board Approval

- 4 LTCHs in 2 LTC organizations in Alberta & Ontario
- PointClickCare

Objectives of ALERT:

1. Test and adapt e-INTERACT tools for Canadian LTCHs
2. Determine whether ALERT:
   - Reduces potentially avoidable hospitalizations
   - Improves resident and family satisfaction
   - Improves communication among staff and residents/families
3. Add triage component

Anticipated clinical benefits of implementing E-INTERACT

Team collaboration to *identify early* those residents at risk of

- Steady decline
- Sudden decline (urgent; emergent)

At-risk residents benefit from additional assessment, management, monitoring & support in-house

Provides opportunity to deliver optimal care, including the transition to end-of-life

STOP AND WATCH TOOL in PointofCare

STOP and WATCH

- Seems different than usual
- Talks or communicates less
- Overall needs more help
- Pain – new or worsening; Participated less in activities

- Ate less
- No bowel movement in 3 days; or diarrhea
- Drank less

- Weight change
- Agitated or nervous more than usual
- Tired, weak, confused, or drowsy
- Change in skin color or condition
- Help with walking, transferring, toileting more than usual

☐ Check here if no change noted while monitoring high risk patient

Healthcare Aide / Personal Support Worker's Processes

HCA notices a change in residents status

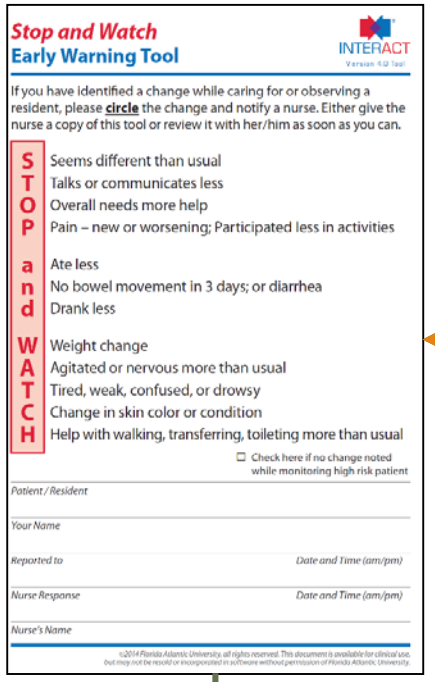
Does resident need urgent attention?

No

YES

Notify the nurse of change in status

Nurse assesses resident and decides on next action



Stop and Watch
Early Warning Tool

INTERACT

If you have identified a change while caring for or observing a resident, please **circle** the change and notify a nurse. Either give the nurse a copy of this tool or review it with her/him as soon as you can.

S Seems different than usual
T Talks or communicates less
O Overall needs more help
P Pain – new or worsening; Participated less in activities

a Ate less
n No bowel movement in 3 days; or diarrhea
d Drank less

W Weight change
A Agitated or nervous more than usual
T Tired, weak, confused, or drowsy
C Change in skin color or condition
H Help with walking, transferring, toileting more than usual

☐ Check here if no change noted while monitoring high risk patient

Patient / Resident

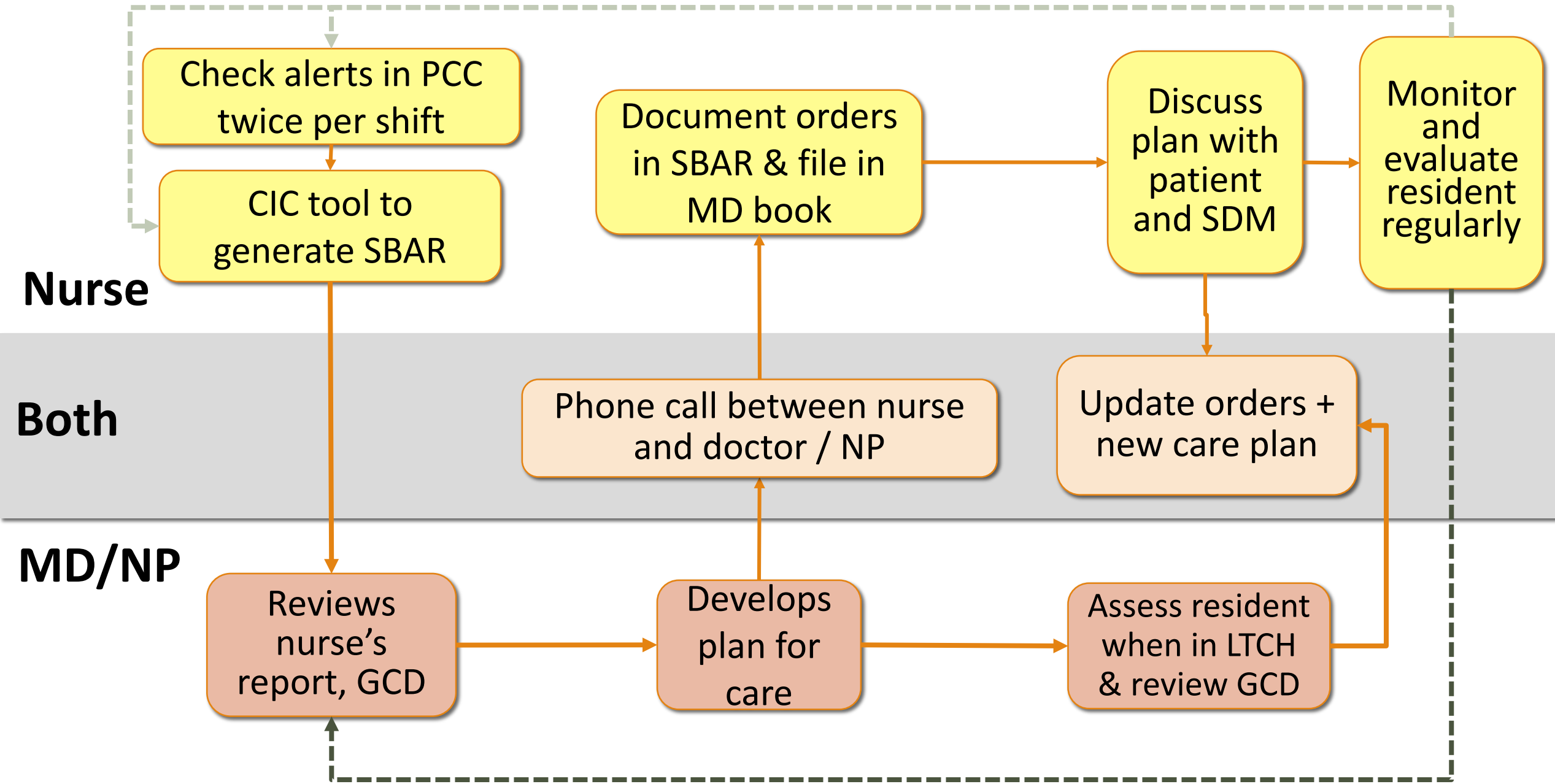
Your Name

Reported to *Date and Time (am/pm)*

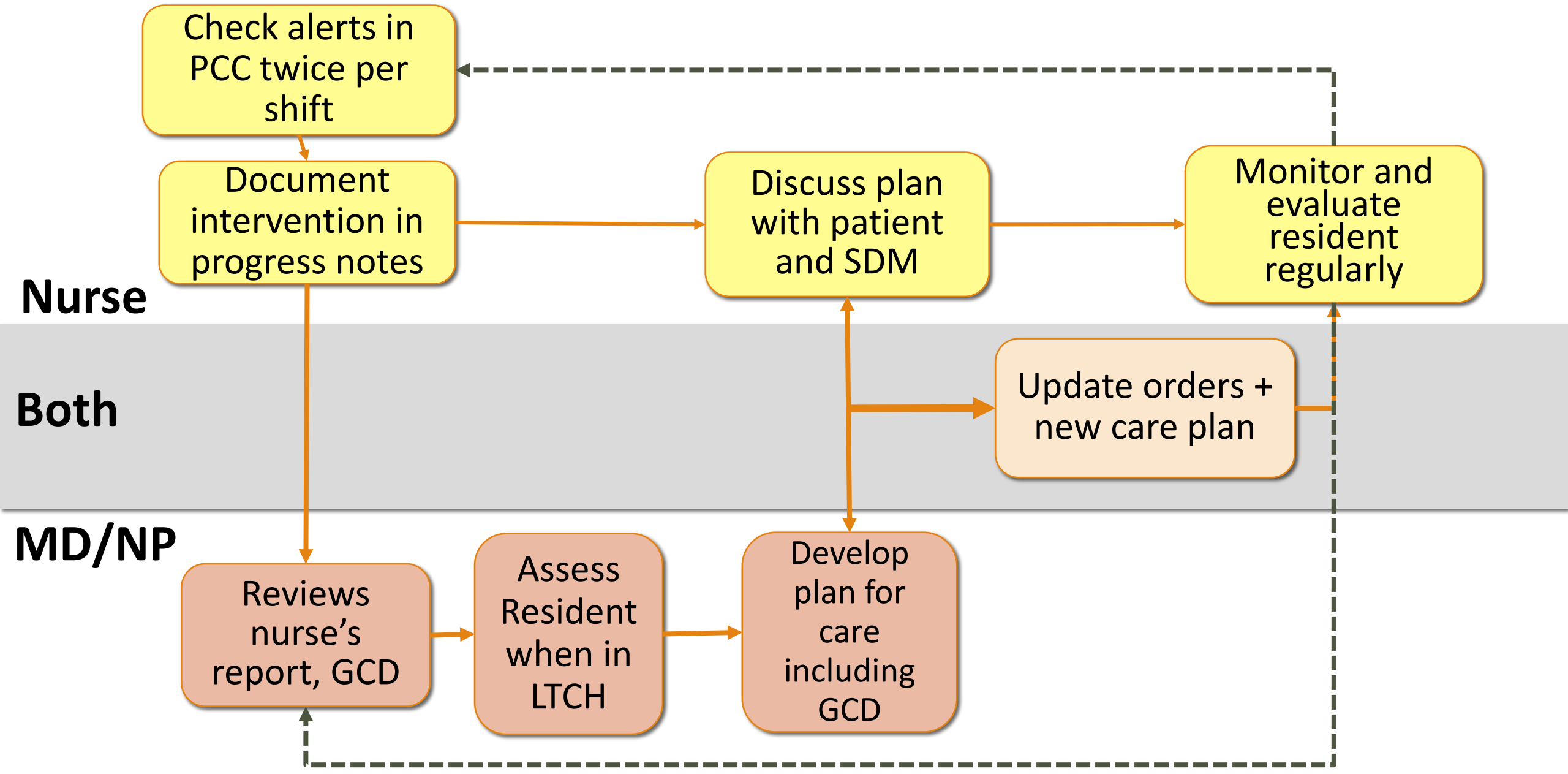
Nurse Response *Date and Time (am/pm)*

Nurse's Name

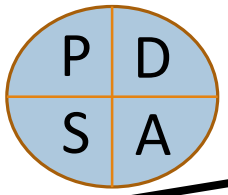
Nurse and MD Workflow For Urgent Alerts



Nurse and MD Workflow For Non-Urgent Alerts

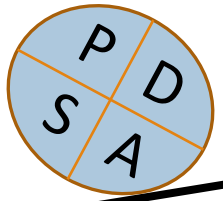


A Tumultuous Journey…



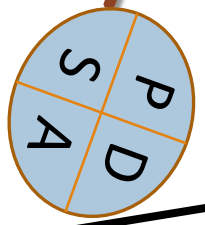
Adaptation of E-INTERACT for Canada

- Required addition of Canadian lab units (6 month delay in start)
- Tabletop exercises to ensure safety



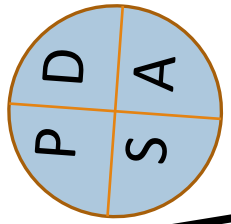
Implementation in Toronto LTCHs

- MD engagement
- Group education sessions for frontline staff
- Mentoring during week of launch



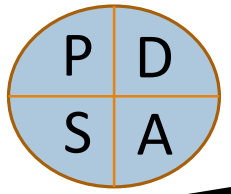
Challenges in Toronto

- Loss of HQP minimal data collection and survey administration
- Outbreaks in LTCH's delaying start
- Minimal uptake by staff
- Protocol breaches requiring termination at those sites



Implementation of E-INTERACT in Calgary

- Train-the trainer
- Frontline staff group education
- Reminders (multiple modalities)
- Individual mentoring



Challenges in Calgary

- Outbreaks and construction delaying start
- REB modification prolonged over summer
- No uptake of E-INTERACT by staff despite one-on-one coaching

Conversion to Canadian Lab Values

eINTERACT™ SI Unit Conversion Table

Parameter	Current INTERACT Units (US)	SI Units (Canada)
Serum Total Calcium (Ca)	>12.5 mg/dl	>3.12 mmol/L
Potassium (K)	<3.0 or >6.0 mEq/L	<3.0 or >6.0 mmol/L
Sodium (Na)	<125 or >155 mEq/L	<125 or >155 mmol/L
Blood glucose	<70 or >300 mg/dl (diabetic)	<3.9 mmol/L or > 16.6 mmol/L (diabetic)
Blood glucose	Consistently > 200 mg/dl	Consistently >11.1 mmol/L
Blood Urea Nitrogen (BUN)	>60 mg/dl	>21.4 mmol/L
Hematocrit	<24	<0.24
Hemoglobin (Hb)	<8	< 80 g/L
Platelets	<50,000	<50 x 10^9 /L
WBC	>14,000	>14.0 x 10^9 / L
WBC	>10,000 without symptoms or fever	>10.0 x 10^9 /L without symptoms or fever
Colony Count (Urine Culture)	>100,000 colony count	>100,000/L

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Implementation Strategies: Staff Engagement and Training at Both Sites

- Clinical champions identified and trained
- Intro sessions re: ALERT study for champions, leadership, frontline staff and MDs
- Physician newsletter updates
- Coaching/Mentoring frontline staff made available to support using the tool

Implementation Strategies: Calgary site

Education

- Educational e-modules for frontline staff
- Training from United States (Pathways) – key champions and research team attended full day training
- 1:1 education with professional staff with case study to show tool application
- Hot spot education for those who requested additional education/ follow up education from initial training

Reminders - emails, posters**,** stickers, reminders in day timers, reminders from key champions

Audit and Feedback

Methodology: Sample and Data Sources

	Toronto Sites	Calgary site
Number of sites	**3**	**1**
Charts reviewed	**97**	**20**
Staff surveys – pre	**118**	**22**
Staff surveys – post	**14**	**0**
Resident surveys	**17**	**0**
Focus groups/interviews	**0**	**11**
Focus group / interview participants	**0**	**16**

Methodology - Chart Review

- Residents who had an E-INTERACT alert, transfer to ED and/or died during the implementation study
- Data cleaning protocol was developed and applied to the data
- 4 research clinicians analyzed nearly 600 resident encounters to answer 4 questions:
  - Should there have been an E-INTERACT alert generated?
  - Should there have been a goals of care discussion?
  - Was the reaction by the healthcare team in line with best practices?
  - If there was a transfer to ER, was it potentially avoidable?

Methodology - Surveys

- Designed pre/post staff survey to assess domains:
- 1. Care team's adherence to practice recommendations particularly for identifying residents entering EOL
- Palliative care programs in the care community
- Team Decision-making
- Workload
- Interaction with Physicians

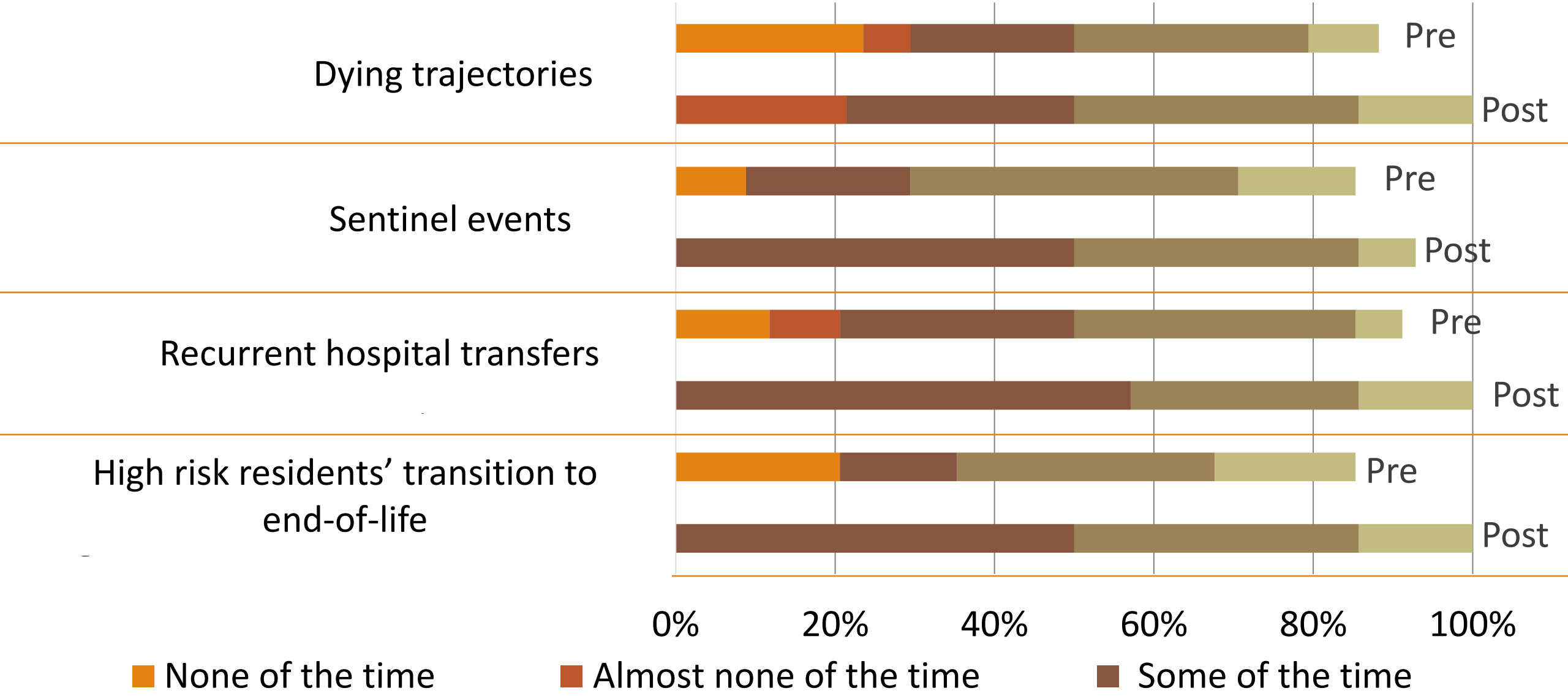
Methodology – Focus Groups

- Frontline staff in the Calgary site were recruited by research assistants and/or the lead for QI / research at the site
- Asked about perceptions of ALERT tools, facilitators and barriers towards its use.
- Audio recordings transcribed → thematic coding (2 coders)

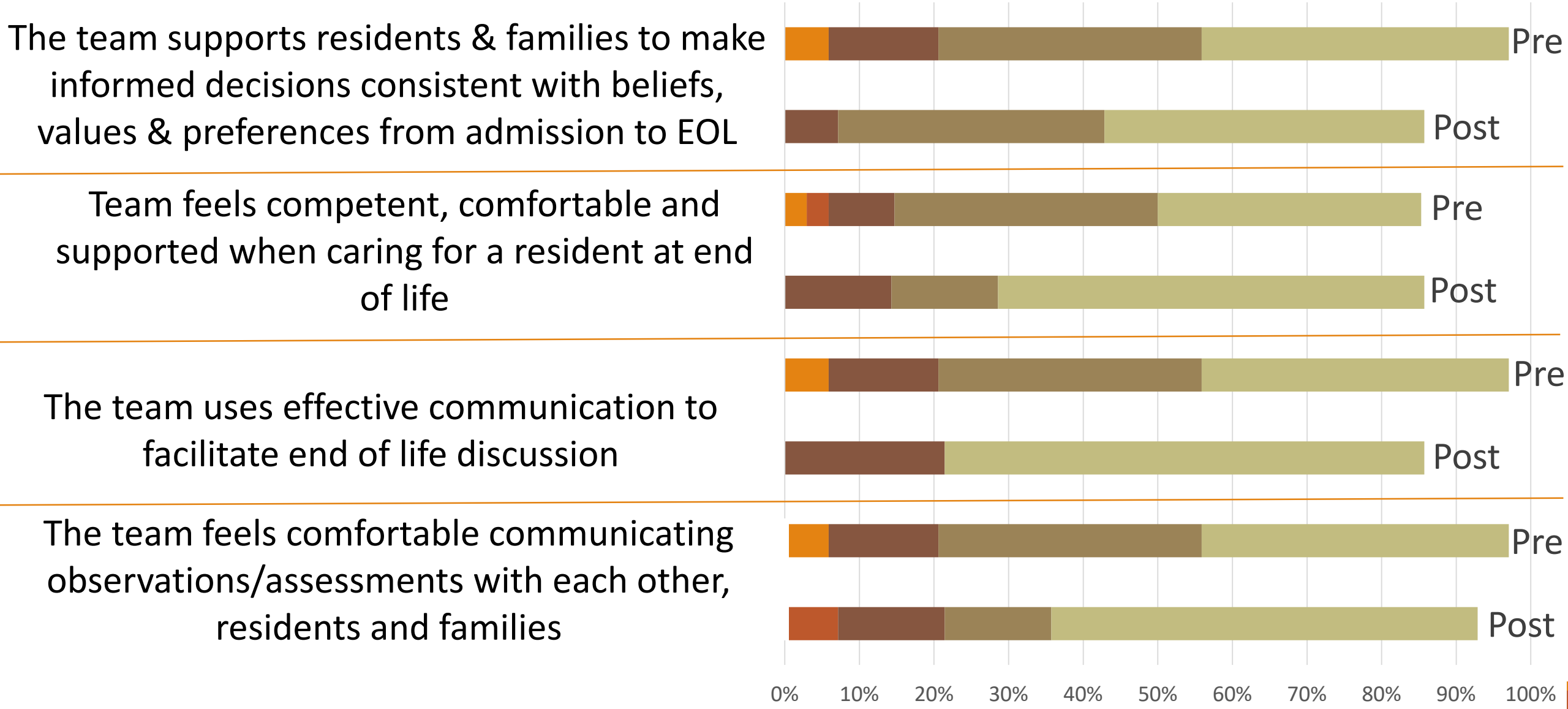
Selected Results…

Pre/Post Staff Surveys:

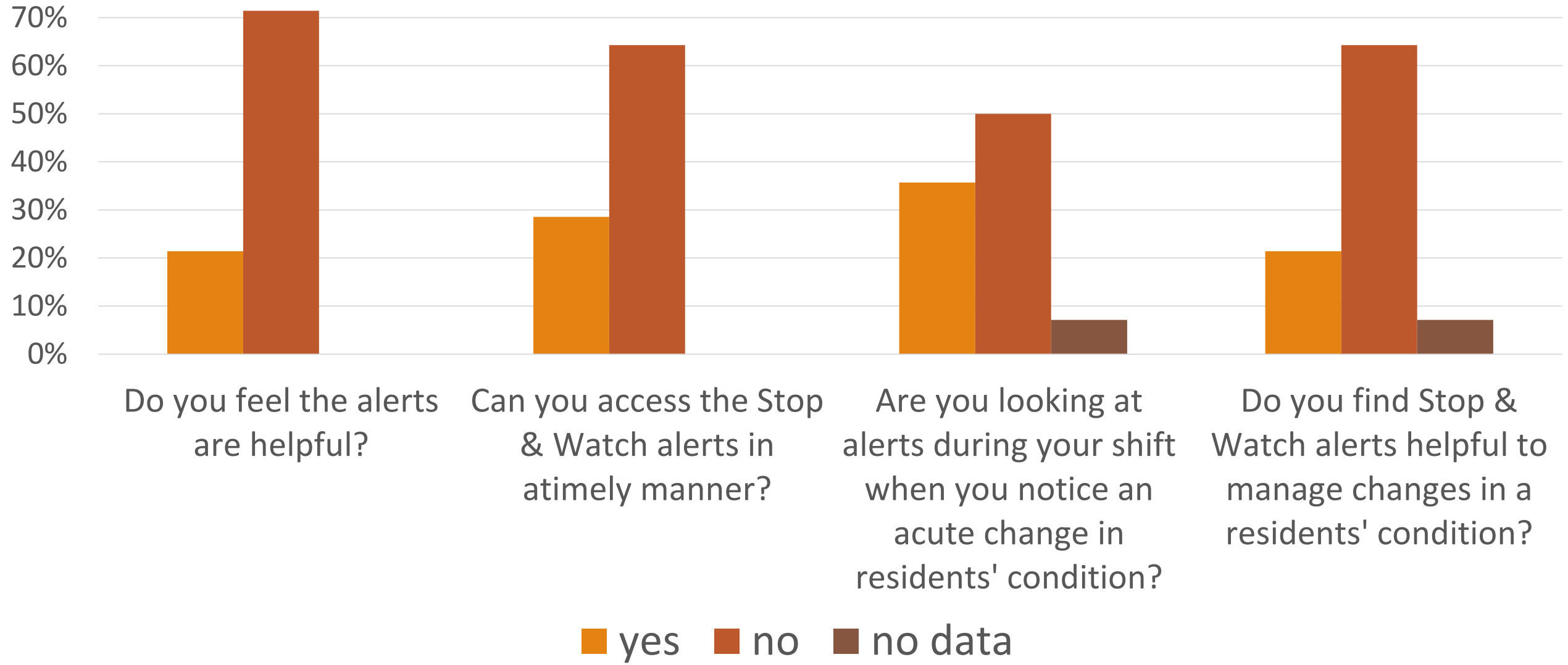
Team's ability to proactively recognize and communicate early warning signs important for flagging patients who need EOLC…



Pre/Post Staff Surveys: Team Communication



Pre/Post Staff Surveys: Use of the E-INTERACT



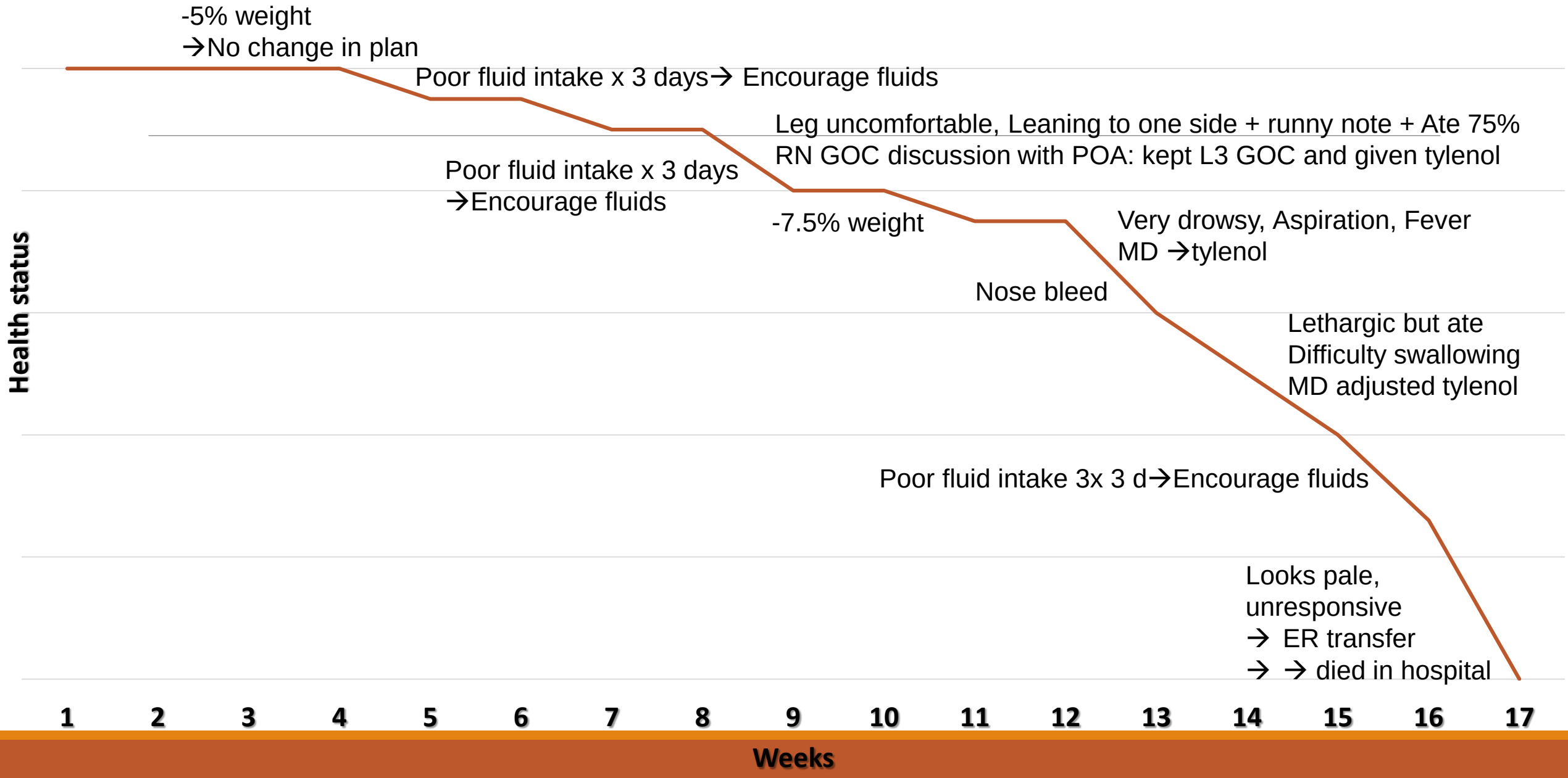
Focus groups: Calgary Site

- Participants were all aware of the tool but did not believe there were many opportunities to use the tools.
- Satisfaction with education provided.
- Focus on the HCAs and follow-up sessions recommended.
- Satisfaction with current situation (i.e. communication with nurse)
  → Participants believed that the tool would make no difference
  - Believe that staff are competent without the tool
  - Current systems/processes/structures work
  - HCAs prefer to have verbal communication with the nurse.

Focus groups: Calgary Site (cont…)

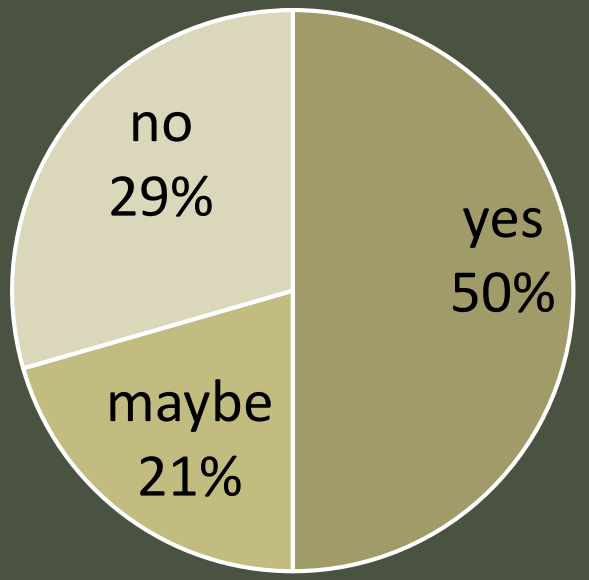
- Workflow
  - Double charting – for pilot, charting electronically *and* on paper before transition to full electronic charting
  - Staff are too busy to use the tool (i.e. renovations, short staffed, too busy, not worth using the tool)
- Interface
  - Not easy to navigate (e.g. small font, not noticeable in POC)
  - Easy to forget to go back into the system and enter the change

Typical Patient Trajectory

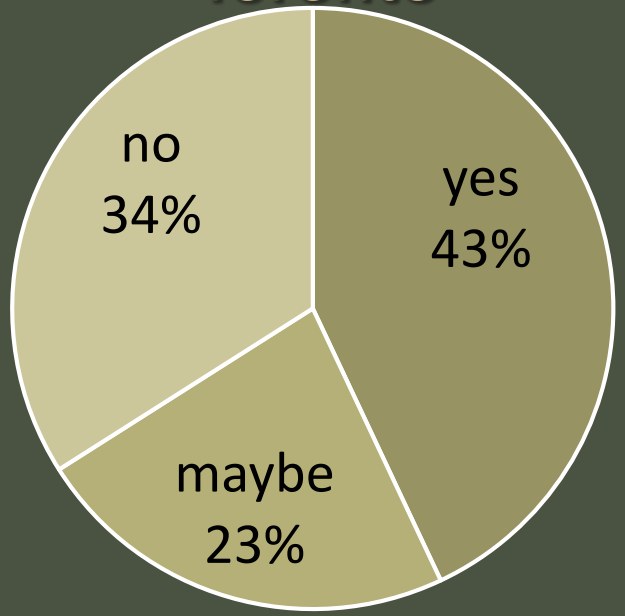


Clinician Researchers' Estimates of Whether Regular Use of E-INTERACT Alerts Could Have Impacted Patient Care

Calgary



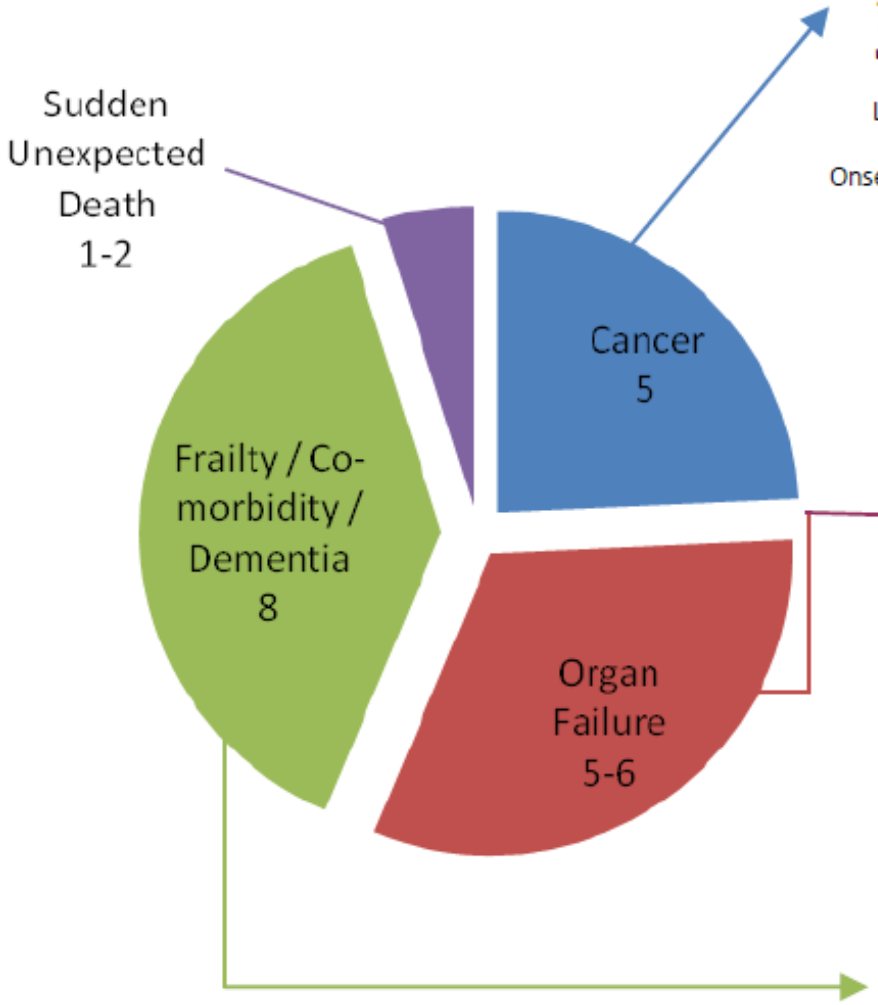
Toronto

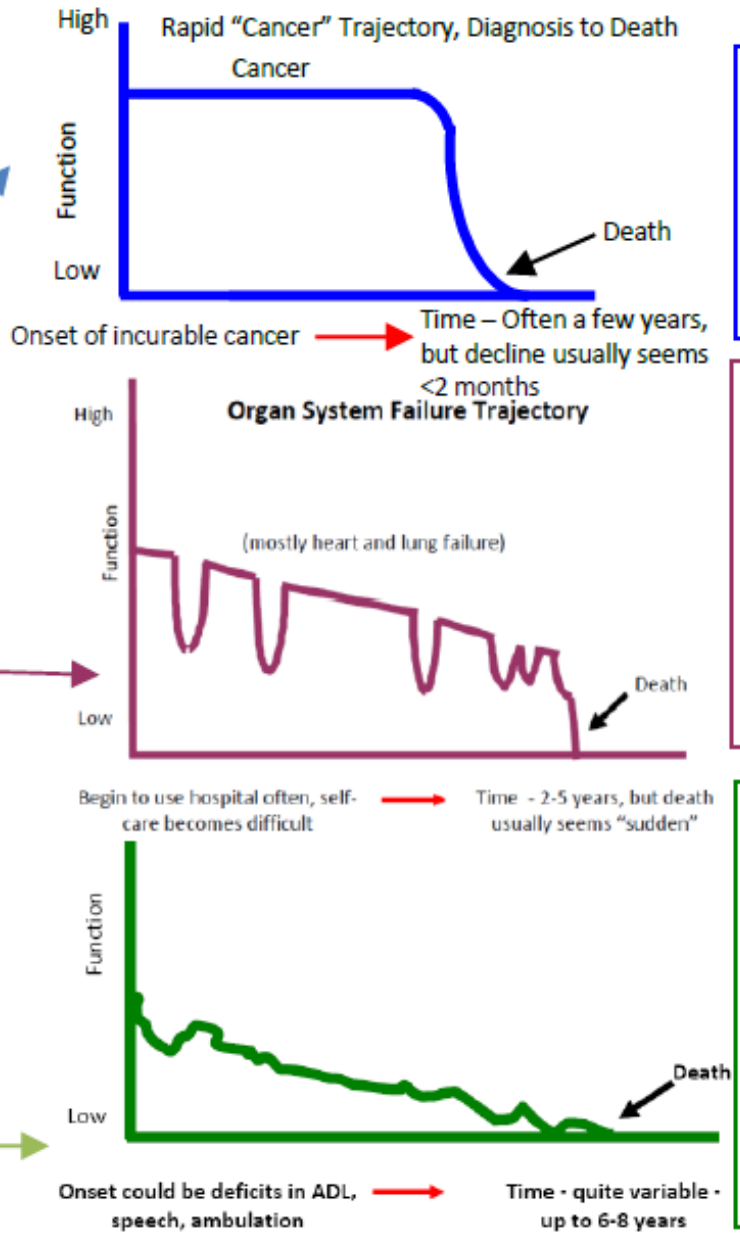


Discussion

- Frontline staff are able to identify changes in status acutely but still do not have an effective system for tracking these changes over time
- Gap - potential for further quality improvement
  - Frontline staff expressed desire to communicate in person with RN and MD rather than electronically
  - Chart review analyzed by clinicians (3 physicians, 1 nurse) revealed trends that were not immediately apparent to LTC physician and nurses directing the care plans

Average GP's workload – average 20 deaths/GP/year approx. proportions





Typical Case Histories

1) Mrs A - A 69 year old woman with cancer of the lung and known liver secondaries, with increasing breathlessness, fatigue and decreasing mobility. Concern about other metastases. Likely rapid decline

2) Mr B – An 84 year old man with heart failure and increasing breathlessness who finds activity increasingly difficult. He had 2 recent crisis hospital admissions and is worried about further admissions and coping alone in future. Decreasing recovery and likely erratic decline

3) Mrs C – A 91 year old lady with COPD, heart failure, osteoarthritis, and increasing signs of dementia, who lives in a care home. Following a fall, she grows less active, eats less, becomes easily confused and has repeated infections. She appears to be 'skating on thin ice'. Difficult to predict but likely slow decline

Recommendations for future research…

Require more research to understand contextual/cultural factors that affect the use of tools such as e-INTERACT:

- Competing priorities
- Culture of speaking in person

PointClickCare needs to examine interface to integrate better into workflow of Canadian LTCs and to shorten tool

Recommendations LTC Leaders/Clinicians

While team may have clinical acumen in identifying residents at risk, there still is a need for a strategy to systematically highlight residents at risk of health status decline / ED transfer in order to:

- Review GOC proactively
- Change care plan as needed
- Manage workforce to enable individualized care at end of life if needed.

Conclusions: ALERT – proceed with caution

Cannot recommend use of E-INTERACT in Canadian LTCHs at present without further research.

Gaps still exists: Need a tool that makes trends and patterns more apparent and enhances in-person communication without being time consuming

Questions

"The elderly person who is stuck in an acute care hospital bed is not getting the best care, which would be possible if he or she should instead be transferred to a long-term care facility or sent home with appropriate support. An efficient system would not let this happen either."

Drummond report, 2012

Post-webinar survey

Survey will pop up on your screen after webinar

- **Feedback on how to improve webinar series**

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Next webinar

Register at:

http://www.cfn-nce.ca/news-and-events-overview/webinars/

- **Wednesday, September 12, 2018 at 12 noon ET**

  Mixed Methods feasibility study of group peer support interventions to engage the public in ACP – CFN-funded Catalyst Grant Program – Doris Barwich and Eman Hassan, BC Centre for Palliative Care