Reducing Unplanned Admissions for Patients Receiving Radiation Therapy

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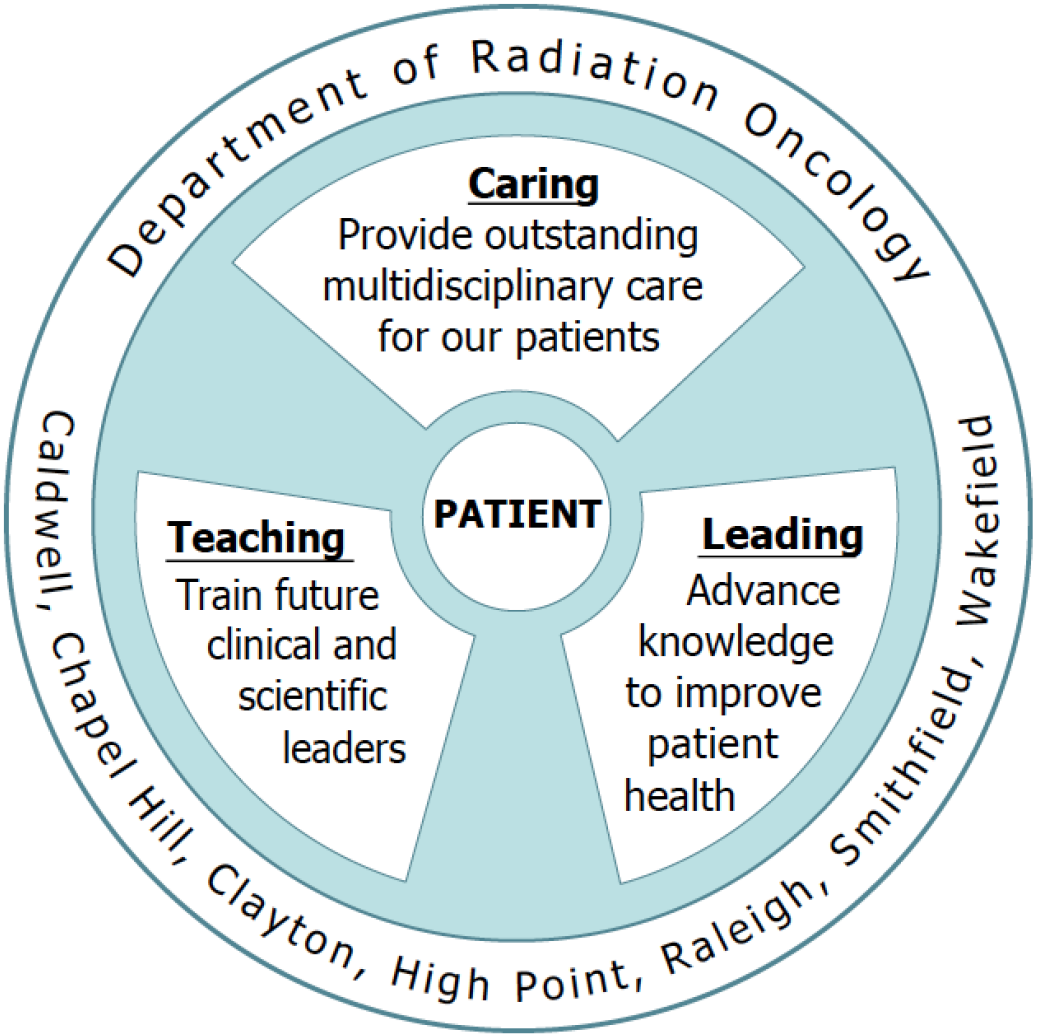


Disclosures

- **Specific to this work**
  - UNC Health Care System; UNC SOM Institute of Healthcare Quality Improvement
- **Departmental grants**
  - Elekta, Siemens, Accuray, NIH, CDC, AHRQ


“I am bummed that I cannot do the presentation. I feel passionate about this topic.”

Background

- Unplanned hospital admissions costly
  - ~$12-$17 billion annually
  - Potentially preventable health care costs[1]

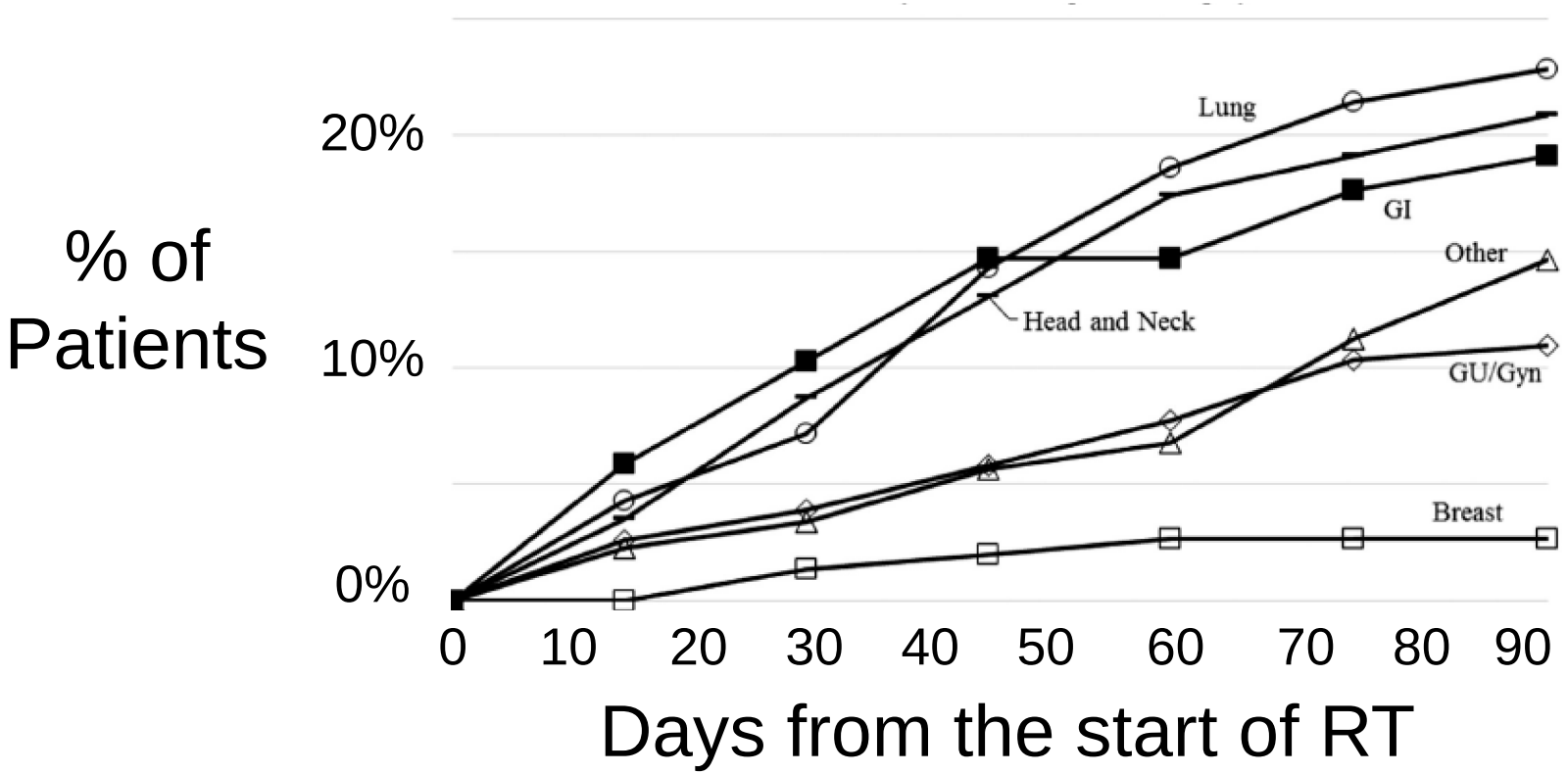
- Cancer treatment
  - Multimodality (complicated/complex):

    surgery, radiation, chemo
  - Intensive → severe acute toxicities/symptoms
  - Inpatient ←→ Outpatient

1. Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. N Engl J Med. 2009;360: 1418-1428

Unanticipated hospital admissions during or soon after radiation therapy: Incidence and predictive factors. Practical Radiation Oncology 2014

- Retrospective Review of 1,116 patients treated at UNC-Hospitals
- ~20% had unplanned hospitalizations within 90 days of starting radiation
- 47% were seen in the clinic within 2 weeks of hospitalization
- Hospitalization rates highest: head and neck, lung, GI, and palliative cases.



Waddle MR, Chen RC, Marks LB.. Practical Radiation Oncology. 2014.

- **Aim**: To reduce unplanned inpatient admissions 50% (from 20% to 10%) by improving outpatient monitoring & management of acute toxicities

- **Two-fold Strategy**

1. Weekly Nurse Practitioner (NP) and Registered Nurse (RN)-lead symptom-management clinic [3]

2. Develop a mobile application for pts to report symptoms in "real-time" (pt self-reporting is a reliable in assessing tx toxicities and correlated well with clinical outcomes[4-6])

3. Mason H, DeRubeis MB, Foster JC, Taylor JM, Worden FP. Outcomes evaluation of a weekly nurse practitioner-managed symptom management clinic for patients with head and neck cancer treated with chemoradiotherapy. Oncol Nurs Forum. 2013 Nov;40(6):581-6. doi: 10.1188/13.ONF.40-06AP.
4. Edgerly M, Fojo T. Is there room for improvement in adverse event reporting in the era of targeted therapies? Journal of the National Cancer Institute. Feb 20 2008;100(4):240-242.
5. Basch E, Iasonos A, McDonough T, et al. Patient versus clinician symptom reporting using the National Cancer Institute Common Terminology Criteria for Adverse Events: results of a questionnaire-based study. The lancet oncology. Nov 2006;7(11):903-909.
6. Basch E, Jia X, Heller G, et al. Adverse symptom event reporting by patients vs clinicians: relationships with clinical outcomes. Journal of the National Cancer Institute. Dec 2 2009;101(23):1624-1632.

NP and RN Symptom-Management Clinic Team

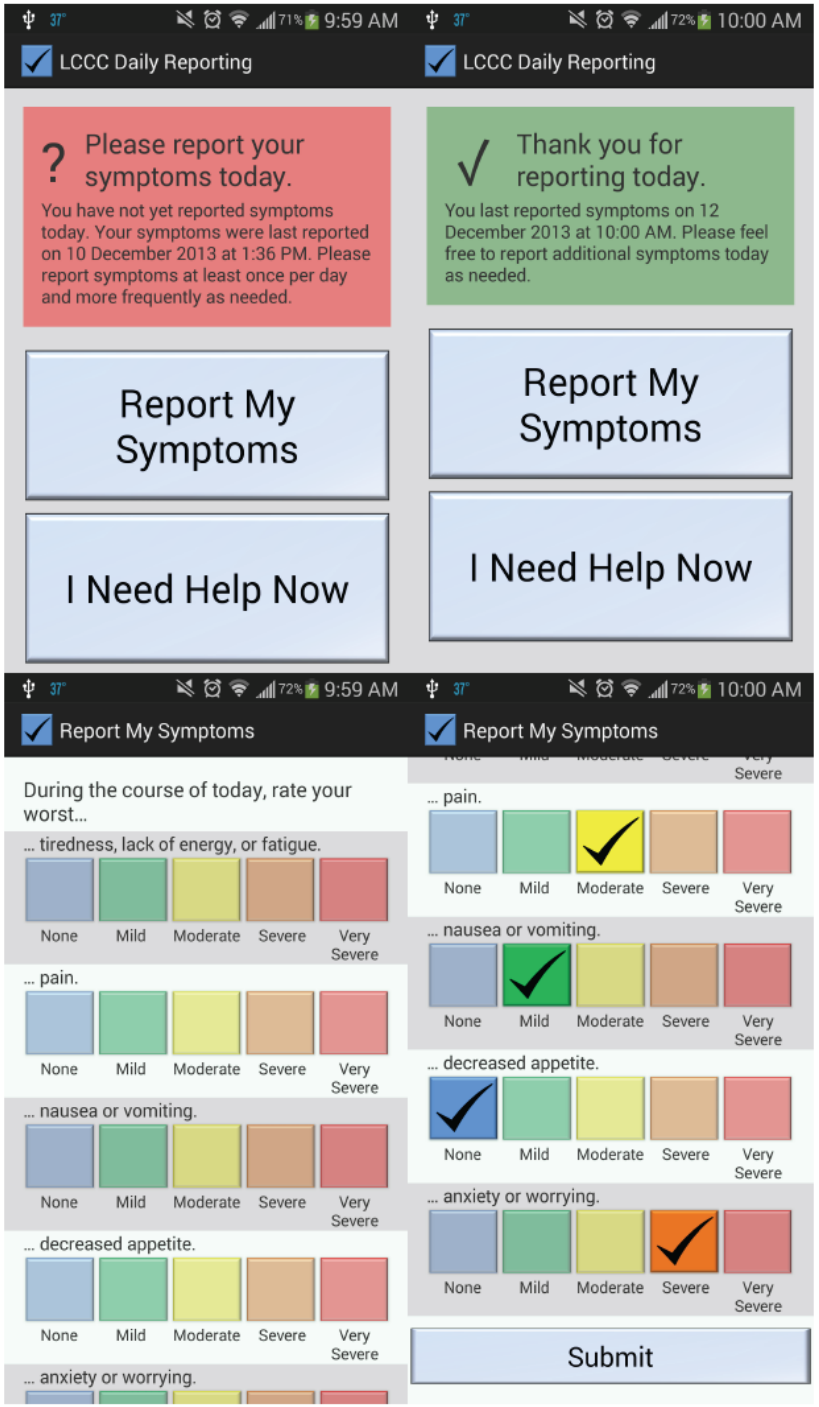
Jayne Camporeale, ANP

Mary Fleming, ANP

Elaine Roth
RN, OCN

Lauren Terzo
RN, BSN, OCN

Mobile App for Symptom Reporting

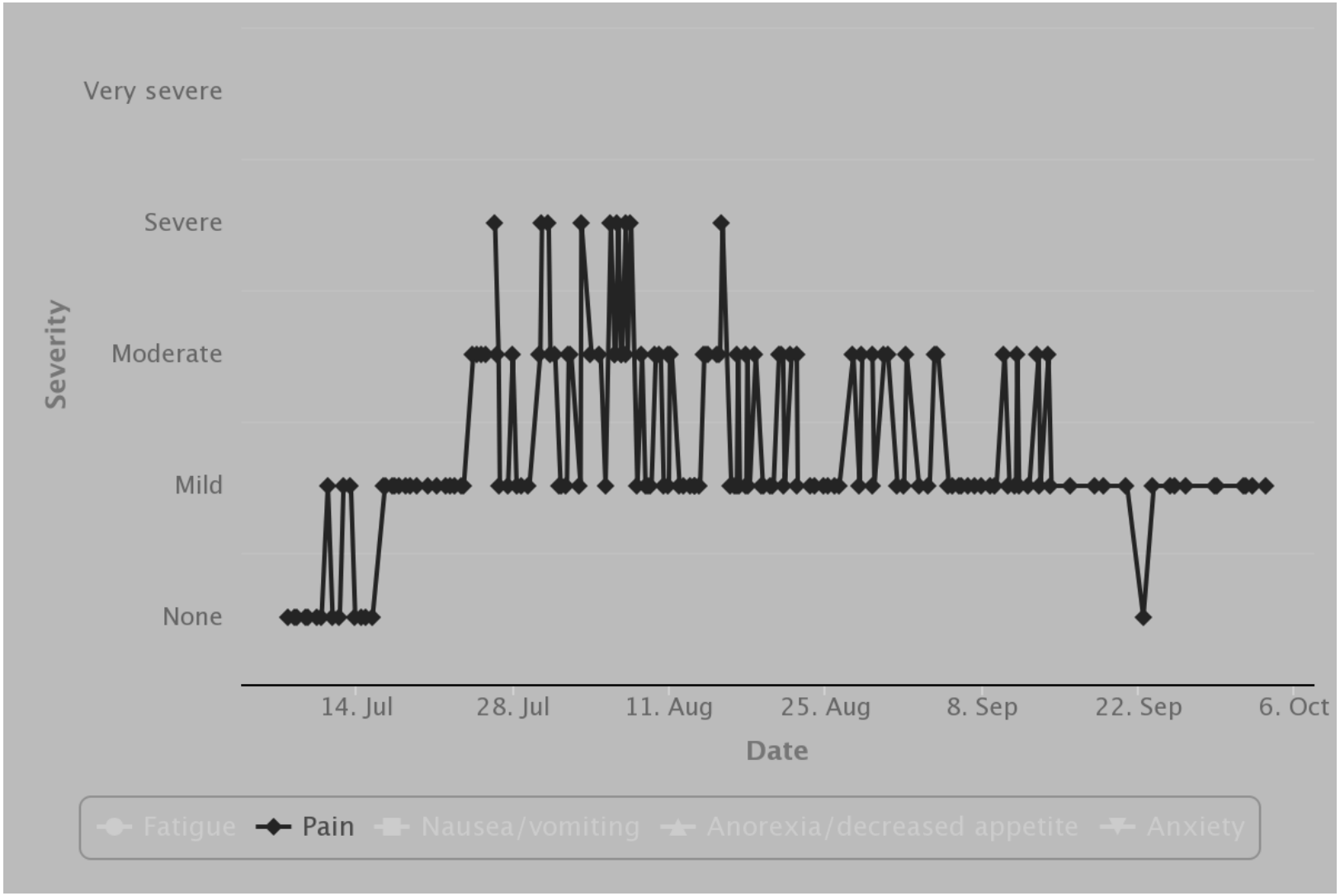


Patients report severity of symptoms:

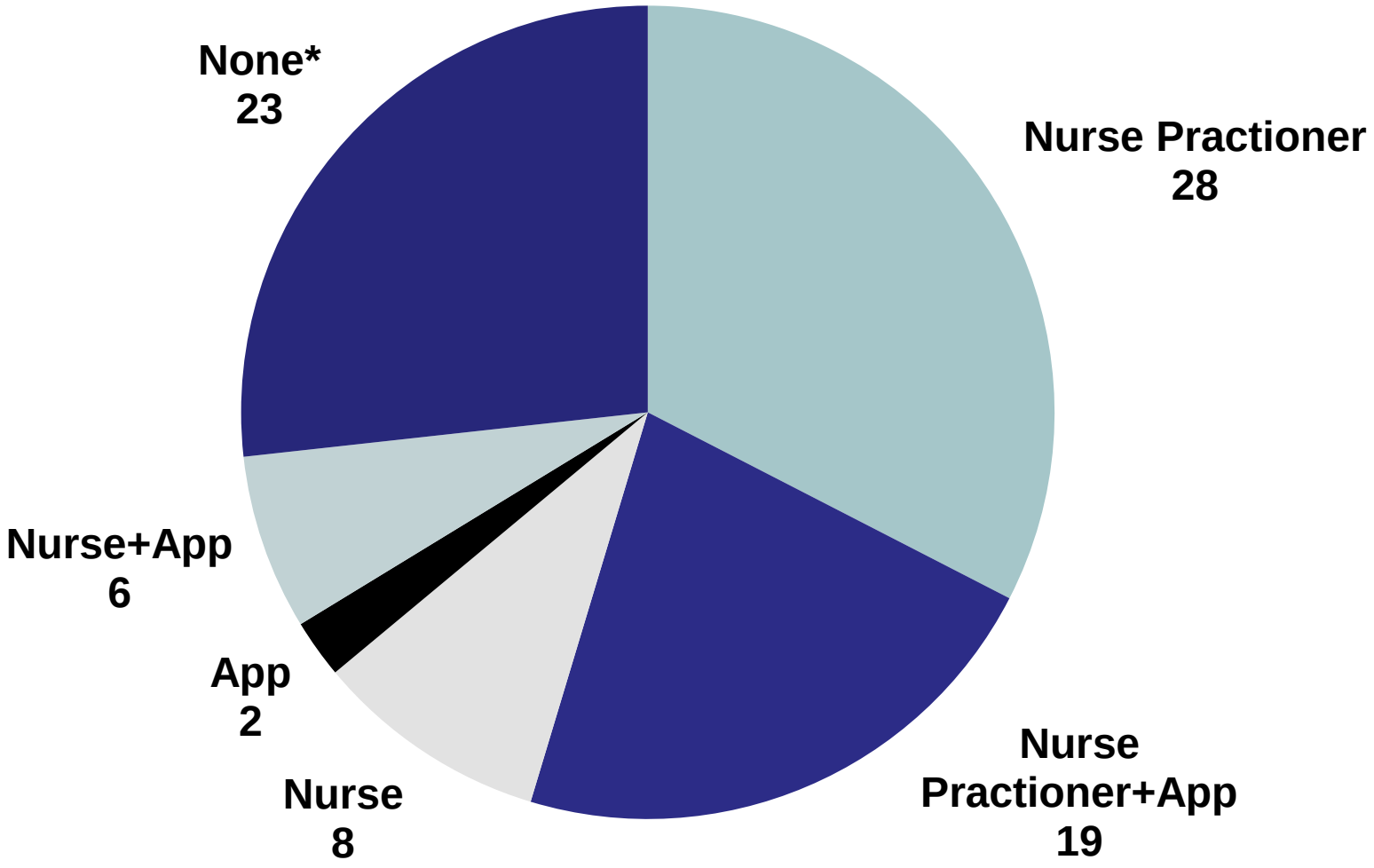
1) Tiredness/Fatigue
2) Pain
3) Nausea/Vomiting
4) Decreased Appetite
5) Anxiety/Worrying

Example of Mobile App Data Available for Providers

- Providers access via secure website to view pt-specific data
- Reviewed with the patient in the Clinic



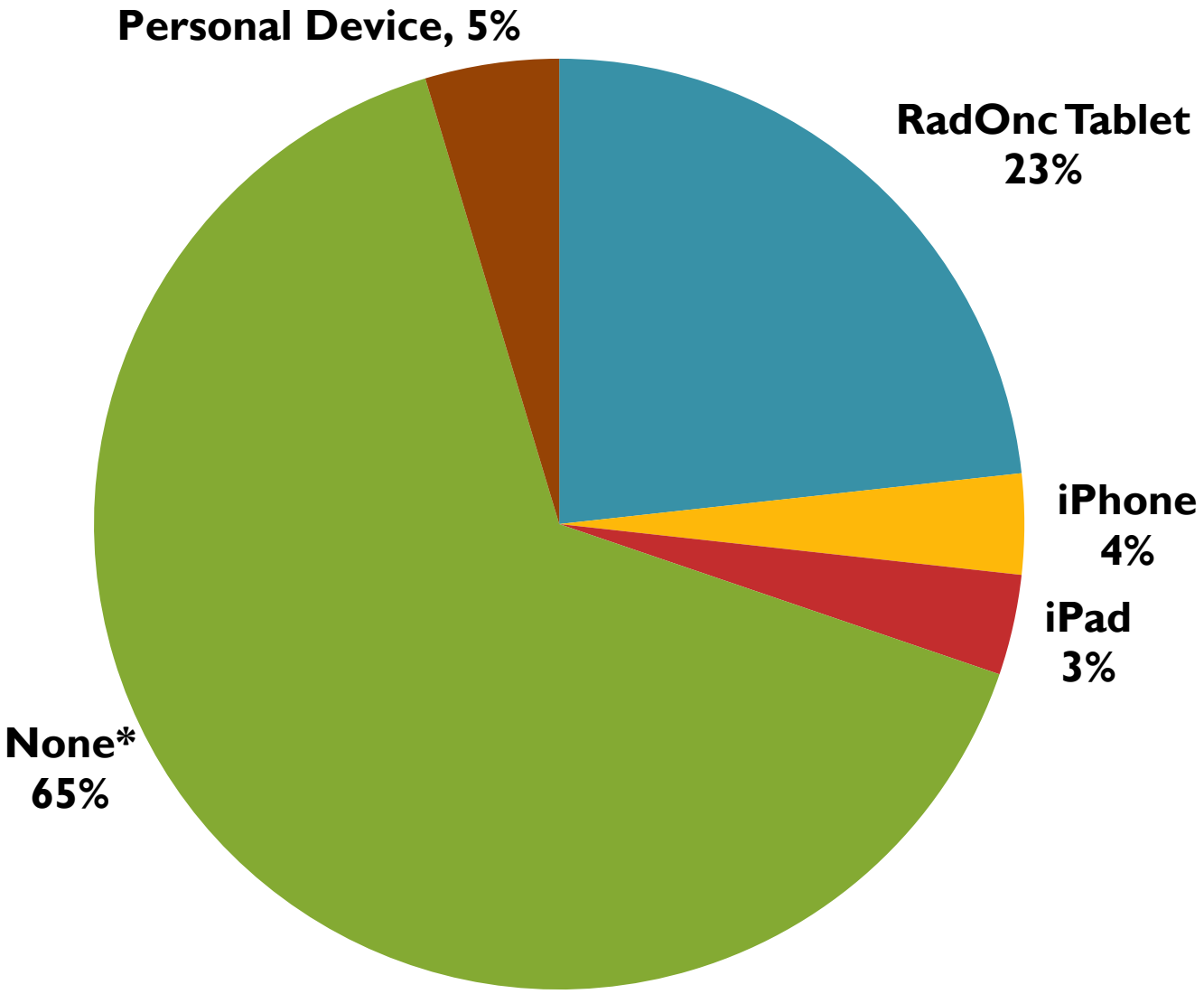
Type of Interventions Since Clinic Inception 8.20.2014



*22% (23/103) = of eligible clinic pts are not seen by a provider due to clinic volume

103 eligible pts with 2 NPs/2RNs each seeing 3-5 pts in additional to normal workload

Mobile App Report Methods: Symptom-Management Clinic



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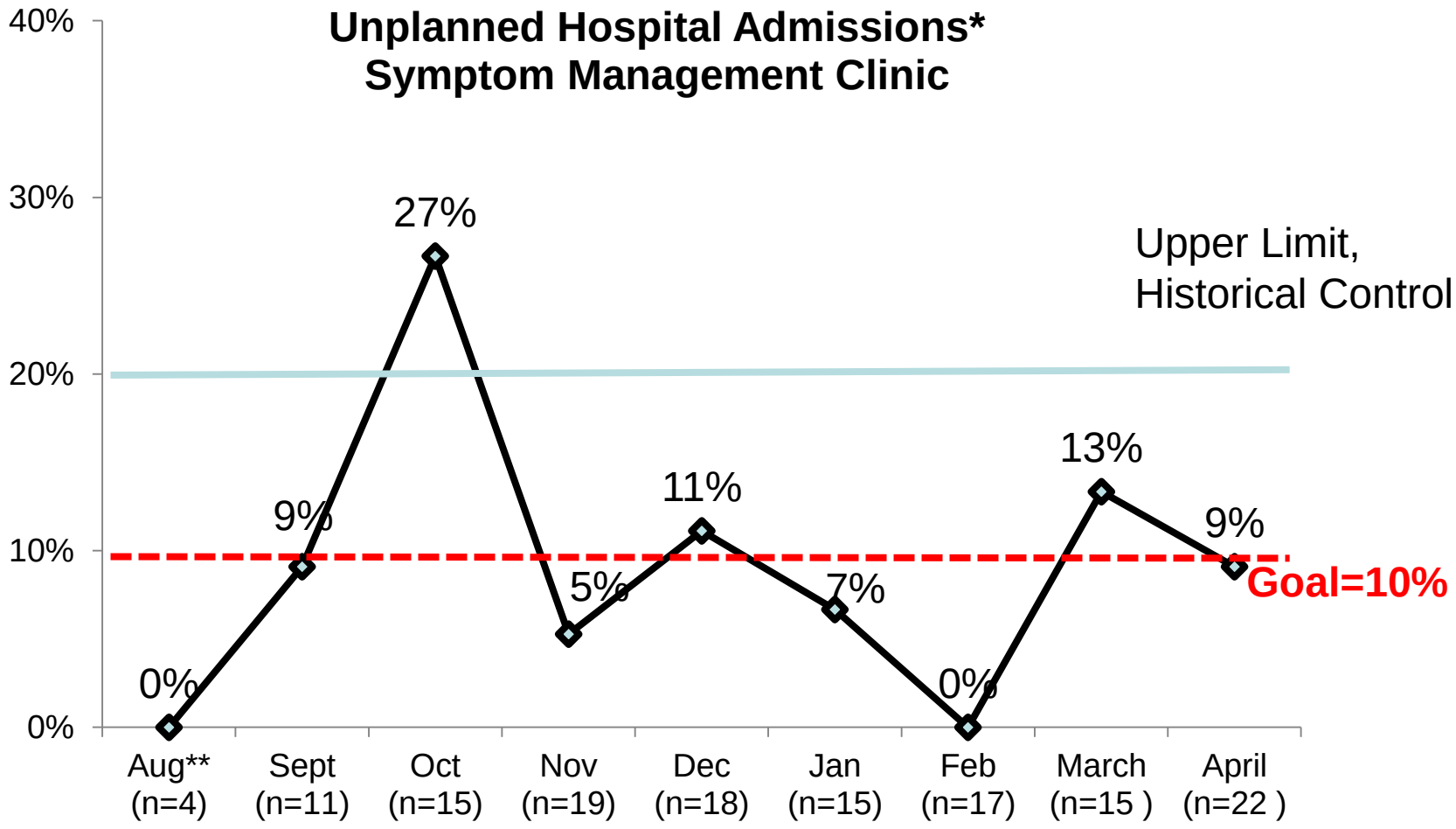
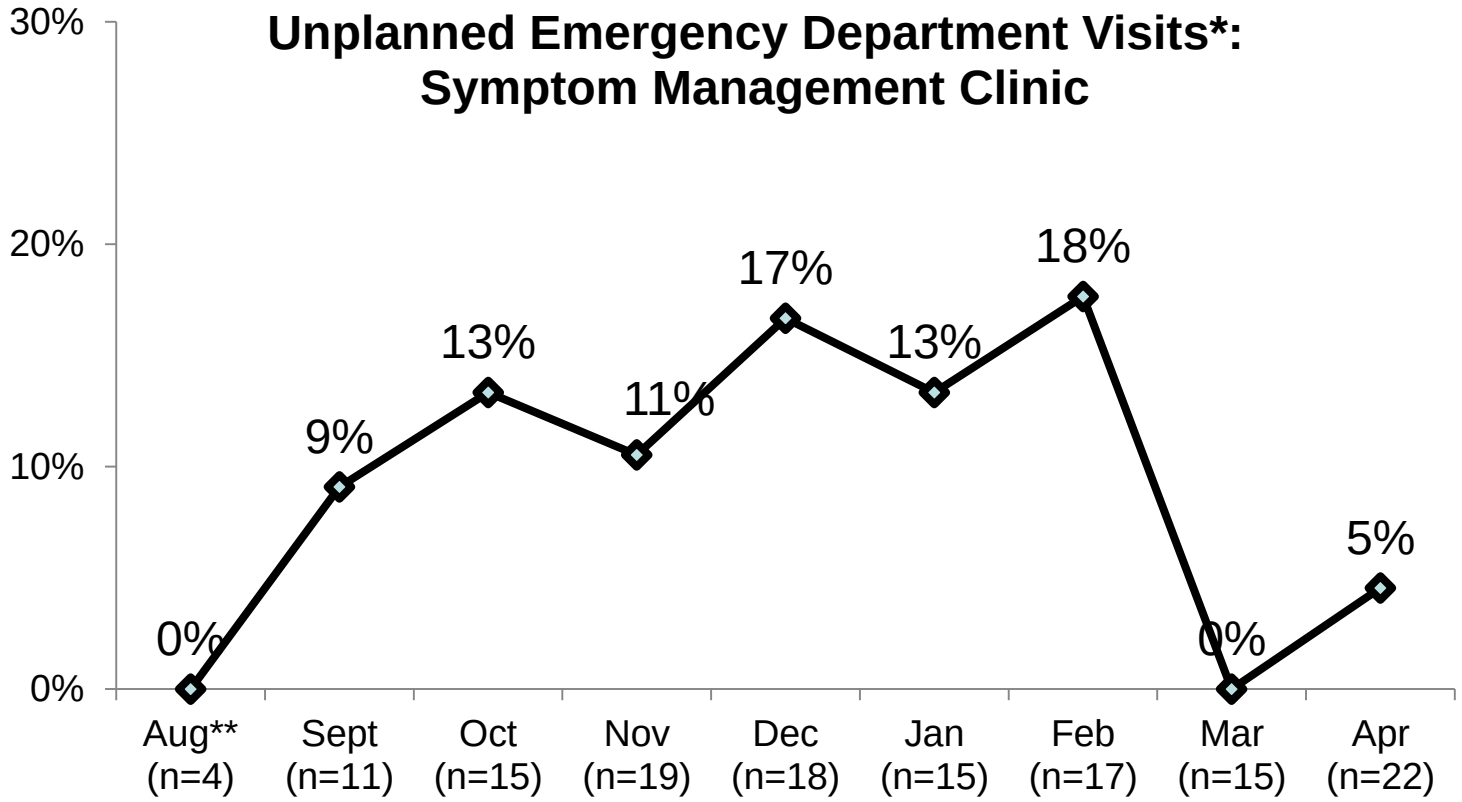


% Unplanned Hospital *Admissions
(n= # clinic pts/mo.)

*does not include multiple admissions
**Clinic began 2014-Aug-20

- Renal failure x4
- Pneumonia
- *Dysphagia*
- Shortness of breath
- Fever x3
- *Acute pharyngitis*
- Hemoptysis
- GI bleed x2
- Small bowel obstruction
- Protein-calorie malnutrition



% Unplanned ED *Visits
(n= # clinic pts/mo.

*does not include multiple ED visits
**Clinic began 2014-Aug-20

- Altered mental status
- Hyponatremia x2
- Chest pain x3
- Hip pain
- Urinary retention
- Nausea/vomiting/dehydration x2
- *Sore throat*
- Respiratory tract aspiration
- Constipation
- G-tube dislodgement
- Renal failure
- Facial swelling

Nurse Testimonial

"Participating in the clinic has enabled me to take a holistic and patient and family-centric approach to care."

"I enjoy being able to practice to the fullest of my scope, education, and training"

Lauren Terzo, RN, BSN, *OCN*

Nurse Testimonial

"Our Symptom management clinic has given me a lot of professional satisfaction. I forgot how much I enjoy direct clinical care."

"Outpatient medicine has changed and it is now more difficult for nurses to focus on clinical care. Too many competing tasks (Epic, billing, etc.)"

Elaine Roth, RN, *OCN*

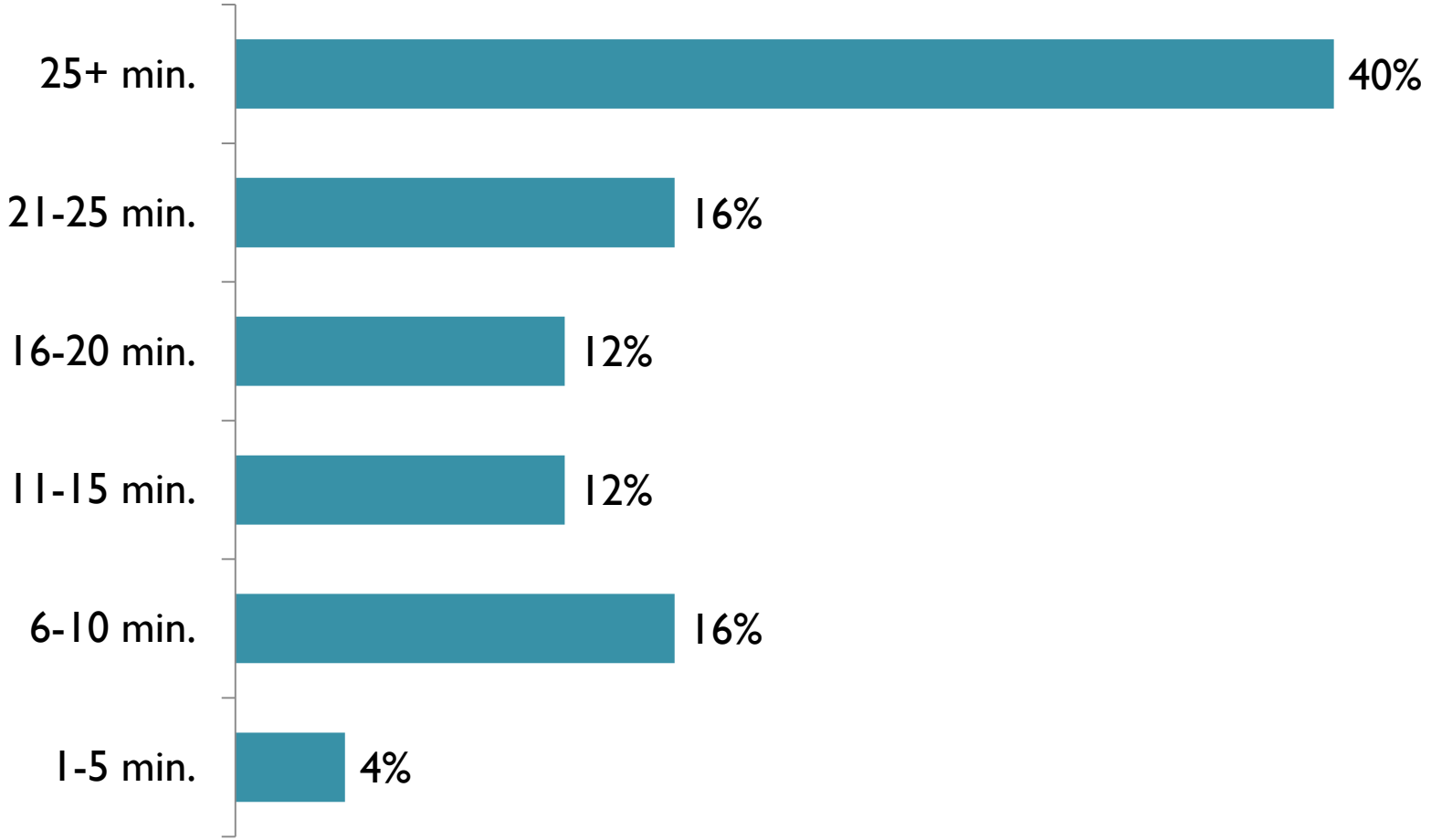
Nurse Practitioner Testimonial

"I saw a patient in symptom management clinic 4:30 PM the day before Thanksgiving. He casually mentioned ankle swelling. He did not mention this to his medical oncologist on Monday or his Radiation oncologist on Tuesday. The radonc nurse called ultrasound, who were about to close. They graciously did bilateral lower extremity ultrasounds that showed bilateral DVT's. I started him on lovenox.

Had there been any delay, he likely would have gone to the ED and I was not leaning that way based on rather benign clinical appearance. However, based on the studies, I dread to think what would have happened had he not started treatment."

Mary Knowles, ANP

Nursing Metrics



Time spent with pt includes:

- 88% education on tx, symptoms, diabetes management
- 8% pt organization i.e. paperwork, other appts
- 4% support and encouragement

Nurse Autonomy: Nurse vs NP?

- Only 24% of RN visits required a NP or Physician involvement
  - example: antibiotics for G-tube site infection, prescriptions, refills
- Thus, 76% of visits reasonable for nurse alone

Patient perspective

- The majority of pts ‘agree’ or ‘strongly agree’ that
  - reporting their symptoms helps their physician to better manage them
  - the mobile app is convenient to use daily

- 100% of pts feel this initiative is worthwhile and would recommend it to other cancer pts

Sustainability/Spread Plan

- Standard Work in Radiation Oncology
  - Expand to other high risk patients (e.g. palliative)
  - Hire more advanced practitioners/nurses
- Spread to other clinics?
  - NC Cancer Hospital Operations Committee

Lessons Learned

- Patients seem to benefit most by the extra clinical visit

- Mobile App
  - Many older pts are uncomfortable with the technology and/or forget to report if given a RadOnc tablet
  - Surprising how many patients do not have mobile phones/tablets
  - Limited departmental tablet loaners

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