

Driving innovation through electronic PROMs in Radiation Oncology routine care

RANZCR ASM 2021

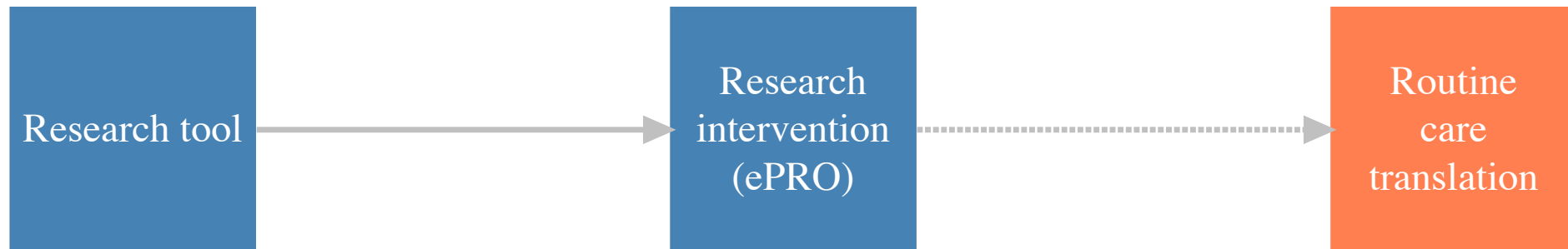
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1. NSCC 2. AIHI 3. USyd 4. CBDRH



Patient-reported Outcome Measures

Patient-reported outcome measures capture a person's perception of their own health through questionnaires (ACSQHC).



ePRO(M)s

ePRO Benefits

- Better QoL (symptom control)
- Better communication
- Survival benefit (Basch et al, JCO 2016)

ePRO Challenges

- Complex healthcare workflows
- Culture & Clinician Buy-in
- Technology (Integration)

ePRO Opportunities

- A successful ePRO implementation enables innovative routine care approaches...

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METHODS USED BY PRO SYSTEMS

Using Stakeholder Engagement to Overcome Barriers to Implementing Patient-reported Outcomes (PROs) in Cancer Care Delivery Approaches From 3 Prospective Studies

Stover, Angela M. PhD^{*,†}; Tompkins Stricker, Carrie PhD, RN[‡]; Hammelef, Karen DNP, RN[‡]; Henson, Sydney BS[†]; Carr, Philip BS[†]; Jansen, Jennifer MPH[†]; Deal, Allison M. MS[†]; Bennett, Antonia V. PhD^{*,†}; Basch, Ethan M. MSc, MD^{*,†,§}

Author Information 

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Clinical GU ePRO team @ NSCC



Journey

2016

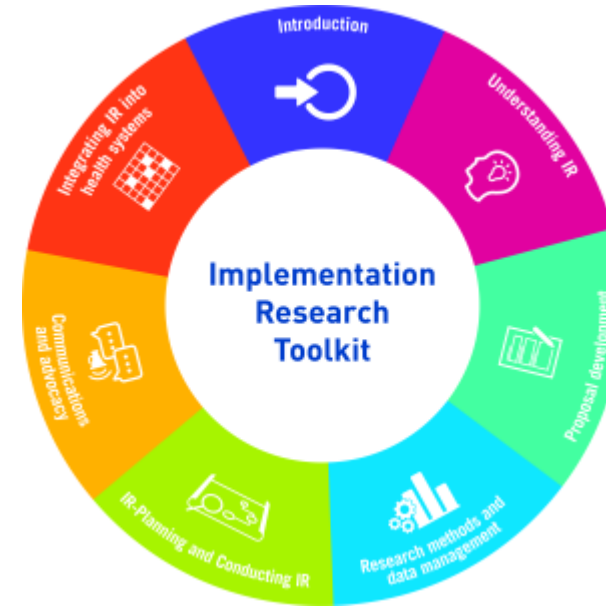
- **Onsite ePRO** collection (iPad in waiting room)
- Completion rates (35-59%; ASM 2017) too low.

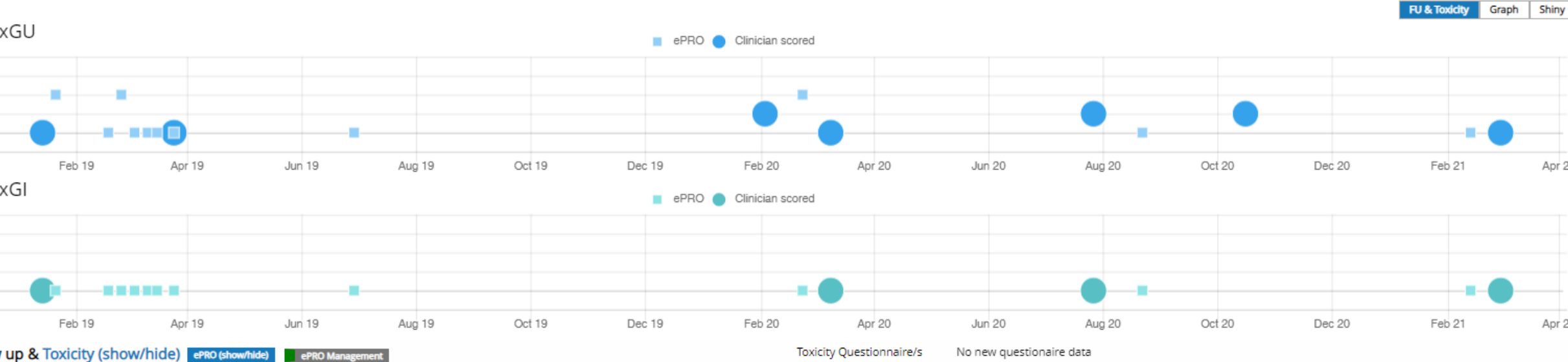
2017

- **Offsite ePRO**: No commercial vendor
- Re-Discovery of **REDCap** as "ePRO survey engine" (survey designer & API)

2018

- Re-implementation of in-house clinical research system enabling REDCap **Integration**





of Assessment: 3/02/2020 | Doctor Reviewing: J. Toby | Current Follow-Up: [dropdown]

Comments: GU - nocturia x1. Urgency occasionally, occasional leakage if unable to find toilet. PSA 5.1 in Dec. For PSMA in few weeks. Plan: F/u in 6 months with PSA. PSMA in 24/03/20 with phone f/u after.

1. Genitourinary Toxicity (MRTOG)

	ePro 29/6/19
Urinary Grade	0
Incontinence Grade	1
Urgency	1
Obstruction / Urinary Retention	0
Hematuria (Renal/GU other)	0
Frequency	0
MAX GU (MRTOG)	1

2. Gastrointestinal Toxicity (MRTOG)

	ePro 29/6/19
All are grade 0 Not Applicable	
Proctitis/Pain Grade	0
Discharge	0
Bleeding per rectum Grade	0
Stool Frequency	0
MAX GI (MRTOG)	0
Nocturia (times)	1
Alpha Blocker/ Anticholinergic	0

3. Other Toxicities

Fatigue	▼
Vertebral crush fracture	▼
Chest wall pain	▼
Other	▼

4. Erectile Function (Potency)

Status	▼
Using medication or device	No

New Patient Survey - Radiotherapy

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Medications

4. Do you take BLOOD THINNERS?
(for instance Warfarin or Aspirin taken every day)

* must provide value

Please select all blood thinners that you take regularly.

* must provide value

 Aspirin (e.g. Cartia or Astrix) Clopidogrel (e.g. Plavix) Aspirin and Clopidogrel combination (e.g. CoPlavix, DuoCover) Warfarin Rivaroxaban (e.g. Xarelto) Apixaban (e.g. Eliquis) Anti-inflammatory painkiller, if taken on daily basis (e.g. Nurofen / Clebrex / Proxen / Voltaren) Other

2. Automated invitation

- Via personalized SMS or Email link
- +/- 1-2 reminders

3. Completion on own device

- Typically in comfort of own home
- Carer/family can help if needed
- Onsite iPad as fallback

4a. Clinical system integration

- Routine availability in clinic or for remote review

4c. Regular scanning of freetext response and clinical escalation if any doubt

4b. Automated email alert if potentially severe ePRO finding

Surveys and Frequencies in our GU Practice

Superset of international **REQUIRE** consortium's questionnaire:

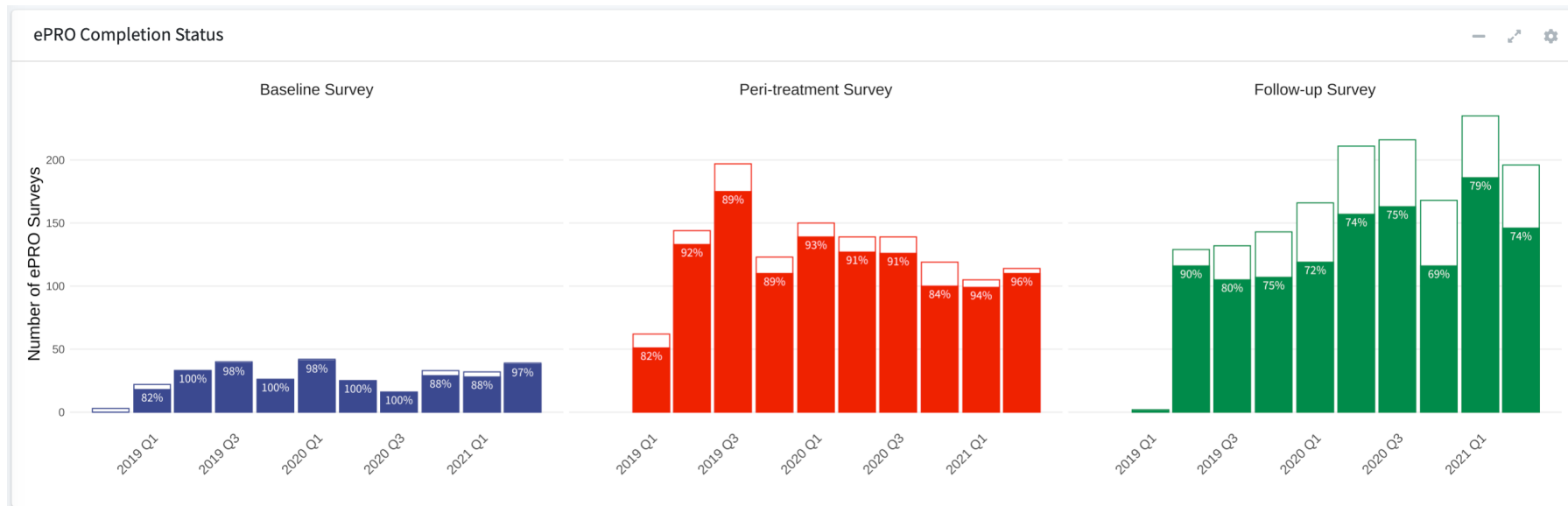
- **Baseline** (ePRO prior to new patient appointment)
- **Peri-treatment** (abridged; weekly ePRO during and in first month post RT)
- **Follow-up** (6 monthly ePRO)

The logo for the REQUIRE consortium. The word "REQUIRE" is written in a bold, black, sans-serif font. The letter "Q" is stylized with a grey outline and contains several small white stars. The letter "U" is also stylized with a grey outline and contains a white DNA double helix.

ePRO Coverage & Completion

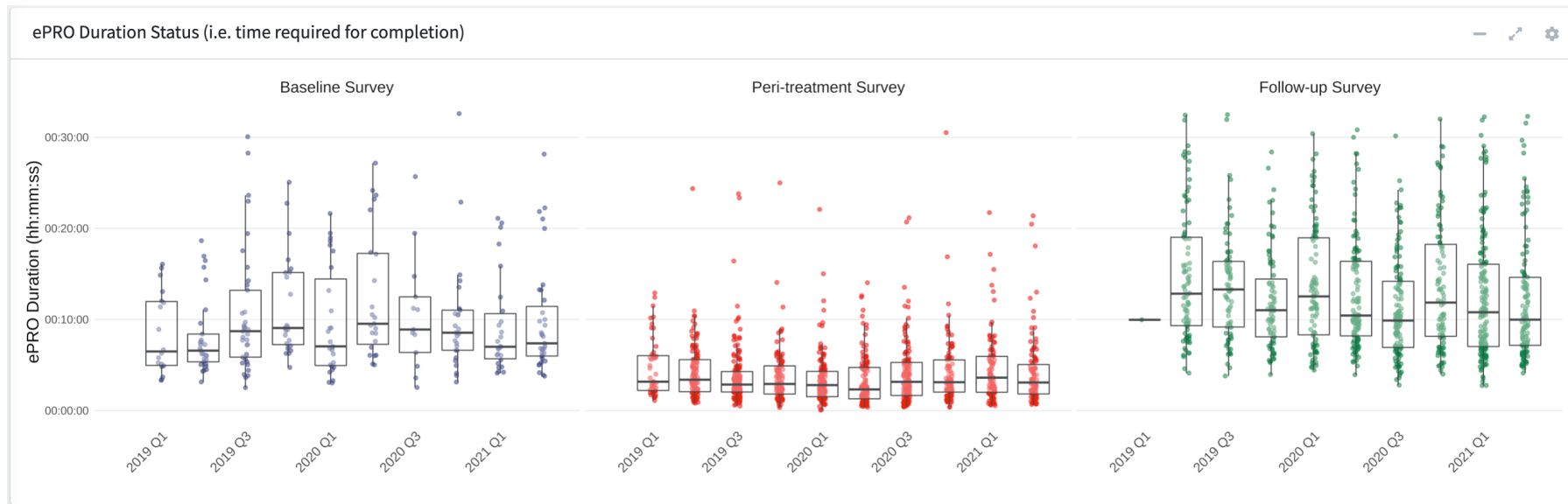
Between Jan 2019 - June 2021 (30mo) n=3201 invitations (+/- reminders) for separate ePROs were sent as part of NSCC prostate cancer clinic.

	Baseline	Peri-treatment	Follow-up
Coverage (only for 2019)	85%	-	-
Completion (Jan 2019 - Jun 2021)	94% (293/311)	91% (1170/1292)	76% (1216/1598)



ePRO Duration

	Baseline	Peri-treatment	Follow-up
1st Quartile	6.0 min	1.8 min	7.7 min
Median	8.2 min	3.0 min	11.1 min
3rd Quartile	12.7 min	5.1 min	16.1 min



Toxicity monitoring over time

- Longitudinal (late) toxicity monitoring ➡ more reliable including less interrater issues with **ePROs**.
- Trend for hypo#/SBRT with acute symptom peaks post RT course ➡ remote **ePROs** +/- alerts can capture them and trigger actions.

Safe, risk-adapted remote follow-up

- Even before COVID-19 we had started to integrate **ePROs** into our phone follow-up program
- We are working on an **ePRO**-only approach under certain circumstances

Embedded, pragmatic real-world clinical trials

- Our ongoing in-house prostate cancer RCT (def. hypo# vs SBRT) has recruited n=188 pts in 2 years
- Without **ePROs** this wouldn't have been possible in a small 3 linac department.

Innovative care pathways

- Recent presentation on **ePRO**-driven referral pathway to community services
- Slides and **video** here: <https://thiloschuler.me/project/epro-driven-crisp>

Conclusion

Routine care ePROs are **challenging on multiple levels**, but definitely **feasible** and well worth the effort as they open **exciting opportunities** to improve the care for our patients.

Link to ePRO Dashboard:

<https://thiloschuler.shinyapps.io/prospector-asm21>



Link to ePRO-driven referral process incl VIDEO:

<https://thiloschuler.me/project/e-pro-driven-crisp>



Thank you

