



ARCC Program Area Webinar: Prospective Outcomes & Support Initiative (POSI)



Canadian
Cancer
Society

Société
canadienne
du cancer



Cancer Care Ontario
Action Cancer Ontario

Dr. Robert Olsen



Research and Clinical
Trials Lead, Radiation
Oncologist, BC Cancer
Agency – Centre for
the North



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Cancer Care Ontario
Action Cancer Ontario



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Prospective Outcomes & Support Initiative (POSI)

An initiative of the provincial Radiotherapy Program
at the BC Cancer Agency

Posi (pronounced pah-zee) is short for "positive" and is being used increasingly by the music industry to define music that unites and inspires their audience.

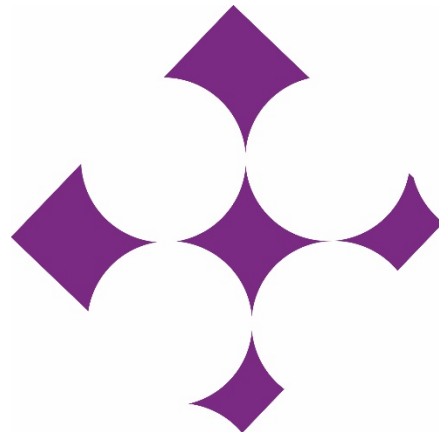
www.urbandictionary.com

July 2013

a place of mind



Funding Sources



ARCC

Canadian Centre
for Applied Research
in Cancer Control

VAR**IAN**
medical systems



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Outline

- History
- POSI bone mets pilot results
- Examples of comparative effectiveness research possible with POSI
- Demo of data entry and display
- Lessons learned / reasons for success



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History: January 2012

Challenge to Provincial RT Program:

Is there something 'big' we should do together?

'Big' = internationally significant and achievable if work across the Program as compared to 1 centre



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History: Vision 2012

Prospective Outcomes and Support

The RT Program will design and implement the work flows and electronic systems to prospectively evaluate toxicity and cancer endpoints and better support patients after a course of RT at the BCCA.



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History: Program Consultation 2012

- January 2012: Focus group of Discipline/Centre Leaders selected Prospective Outcomes and Support as an RT Program priority.
- Feb 2012: Program-wide presentation by video
- Feb/March 2012: Town-hall meetings in each centre
- Apr 2012: Program survey by email



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RT Program Staff supported the concept

Support

I believe, in principle, this is a valuable goal to accomplish.

Response	Chart	Percentage	Count
Yes		89%	331
Maybe		9%	33
No		1%	4
Don't have an opinion		1%	3
Total Responses			371

In principle = 89%

If this goal could be achieved with no extra effort I would be a

Response	Chart	Percentage	Count
Champion		31%	114
Supporter		60%	221
Neutral		7%	26
Detractor		1%	2
No opinion		2%	7
Total Responses			370

If no extra work = 91%

If achieving this goal required a bit of extra attention or effort during my work day I would be a:

Response	Chart	Percentage	Count
Champion		21%	79
Supporter		59%	218
Neutral		12%	46
Detractor		5%	17
No opinion		2%	8
Total Responses			368

If bit more effort = 80%



Support persisted even if extra effort was required

If achieving this goal required noticeable extra attention or effort during my work day I would be a:

Support

Response	Chart	Percentage	Count
Champion		8%	31
Supporter		38%	141
Neutral		27%	98
Detractor		23%	84
No opinion		4%	13
Total Responses			367

If noticeably more effort = 46%

Even if it required considerable extra effort on my part, I think we should develop this idea further.

Response	Chart	Percentage	Count
Yes		51%	186
No		19%	68
Don't know		30%	111
Total Responses			365

If considerable effort = 51%

I am committed to achieving this goal.

Response	Chart	Percentage	Count
Yes		58%	210
Not sure		31%	114
No		4%	16
No opinion		7%	24
Total Responses			364

Commitment was high 58-89%

Summary of Town Hall Meetings and Survey

- Broad support across RT Program exists
- Need to start with pilot projects
- Should improve both *outcomes* and *support*
- Need to secure incremental resources especially for the implementation phase

Patient Reported Outcome Measures (PROMs)

- Standardized
- Validated
- Instruments that measure patients' perception of
 - Health status
 - Function
 - Quality of life



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Patient Reported Outcome Measures (PROMs)

- Standardized
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Patient Reported Outcome Measures (PROMs)

- Standardized
- Validated
- Instruments that measure patients' perception of
 - Health status **Impairment** Do you have a health problem?
 - Function **Disability** Does it interfere with activities?
 - Quality of life **Well-being** Does it bother you?

Why should we collect PROMs?

- Supports patient choice and empowerment
- Assesses system performance
- Enables quality improvement
- Improves clinical management



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When should we measure PROMs

- Ideally collected before and after treatment, to measure:
 - Changes due to treatment
 - Assess benefit from the *patient's perspective*
- Especially valuable where *variations* in health care exist
 - Allows for assessment of relationship between differences and outcomes
 - Potential to improve *quality* and consistency of care
- ❖ CAUSALITY cannot be directly assessed without RCT; but population based comparative effectiveness still high quality



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POSI bone met pilot at BCCA

Where we started and why

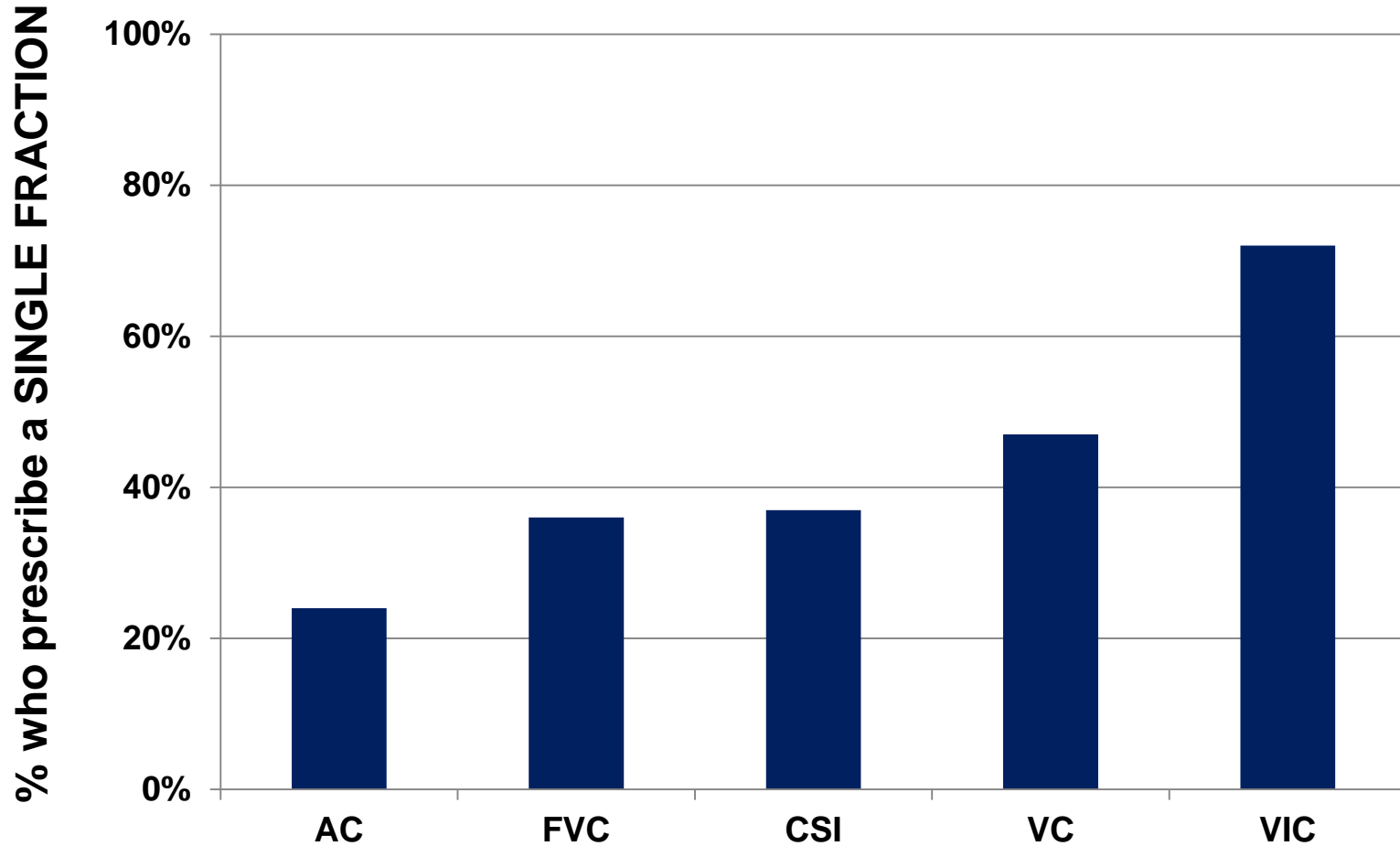


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There is variability in use of single fraction for bone metastases in BC by centre



POSI Questions & format chosen

- Used a modified delphi approach with RNs, RTTs, MDs, PhDs, and leadership to choose:
 - Validated questions
 - Timing of questions



- For this pilot, the group chose:
 - 3 questions at CT sim by **RTTs** in Varian's ARIA system
 - 3 questions, 3 weeks after RT, by **RNs** in ARIA
 - RNs also offer supportive care for unmet needs



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POSI Questions chosen (FACT-BP)

DO YOU HAVE BONE PAIN? IF YES, PLEASE RATE THE SEVERITY.

0 1 2 3 4
(Not at all) (A little bit) (Somewhat) (Quite a bit) (Very much)

DOES THE BONE PAIN INTERFERE WITH YOUR ABILITY TO CARE FOR YOURSELF?

0 1 2 3 4
(Not at all) (A little bit) (Somewhat) (Quite a bit) (Very much)

ARE YOU FRUSTRATED BY YOUR BONE PAIN?

0 1 2 3 4
(Not at all) (A little bit) (Somewhat) (Quite a bit) (Very much)

Impairment: Do you have a health problem

Disability: Does it interfere with activities

Well being: Does it bother you



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Infrastructure developed for this pilot

- Committed team
 - RNs, RTTs, MDs, PhDs, Leadership
- Project details in CTsim for RTTs
- Well defined script
- Workflow process that each centre can customize
- Interactive website



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POSITIVE Results

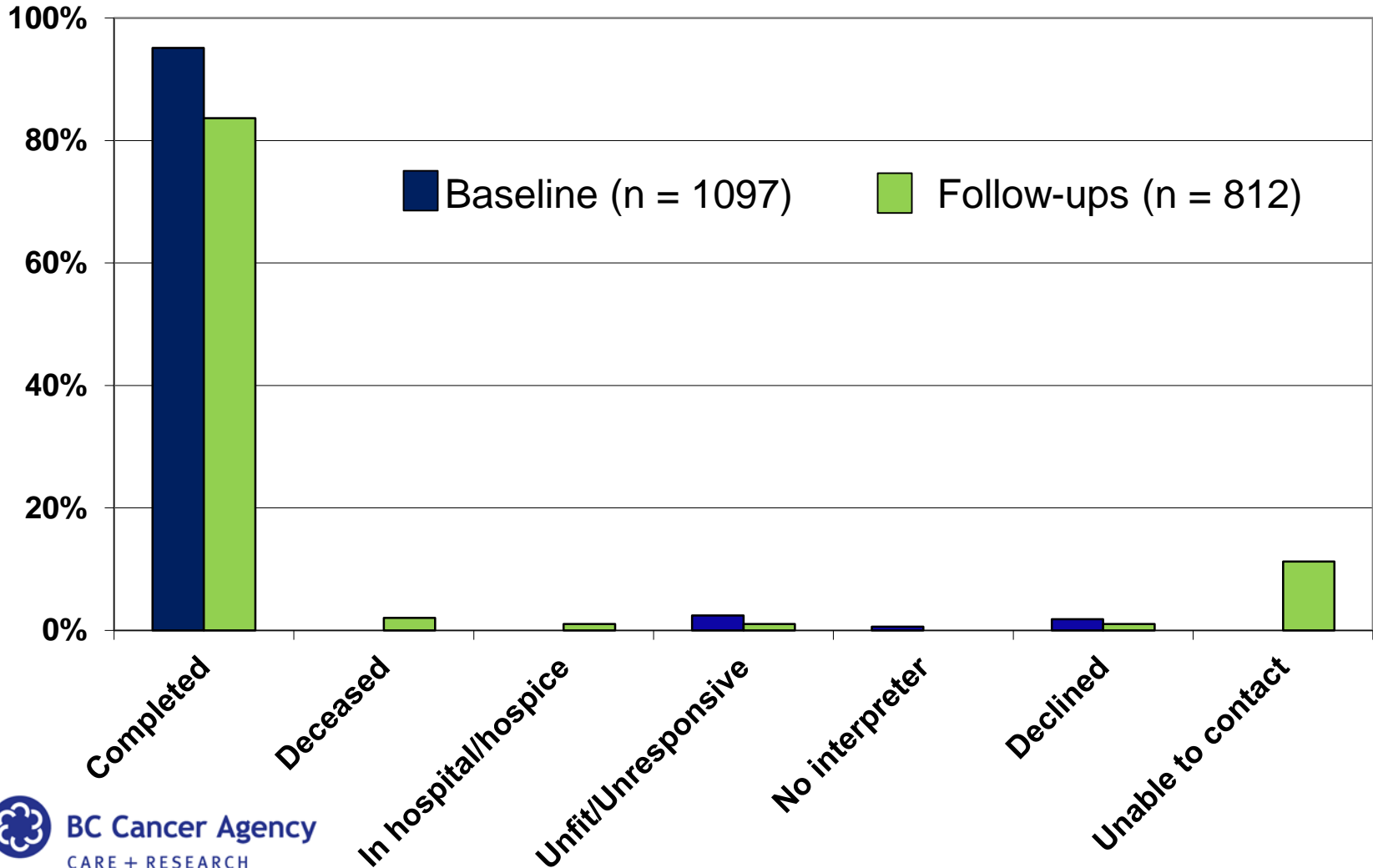


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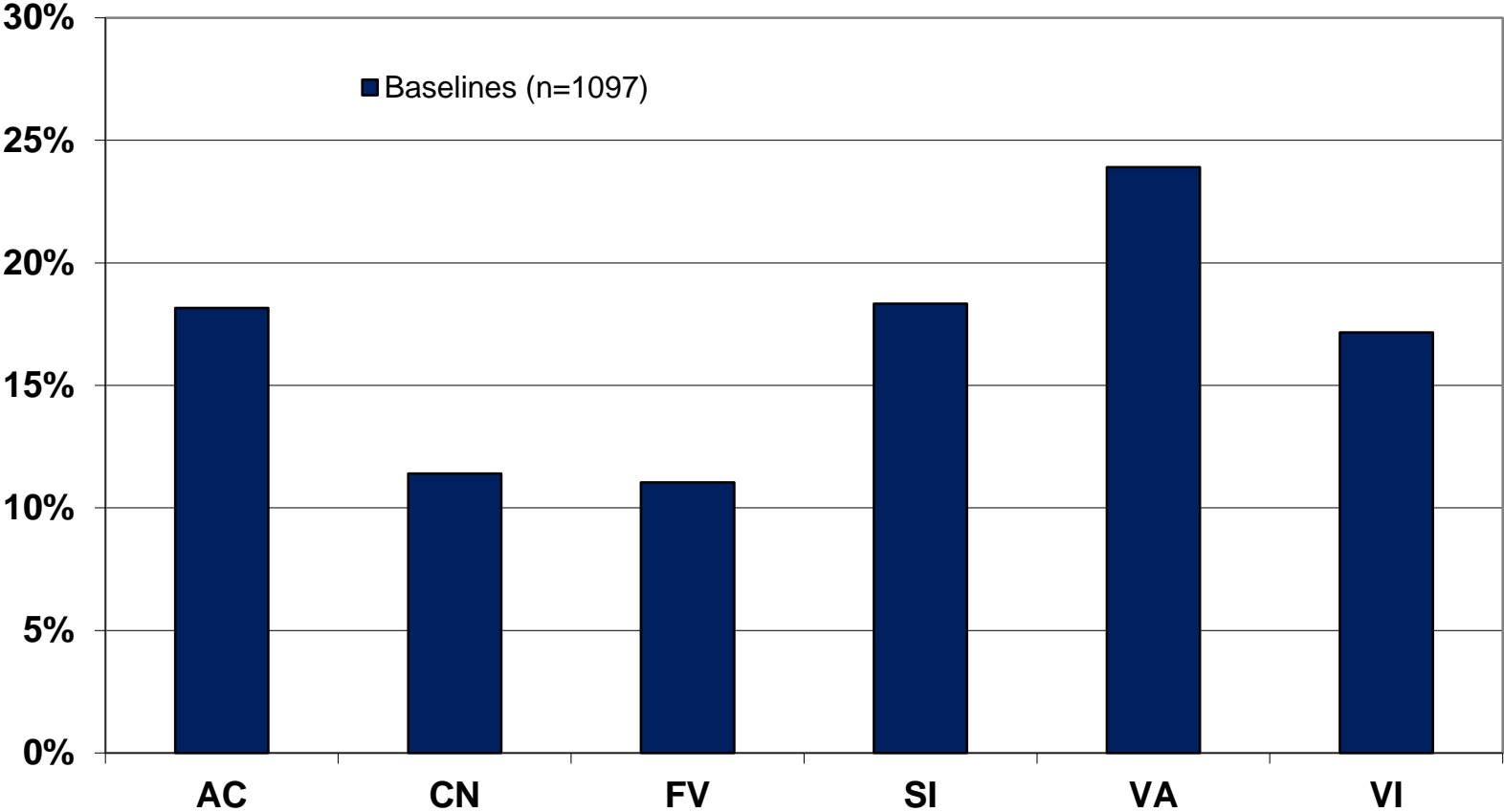
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First year (may 2013)

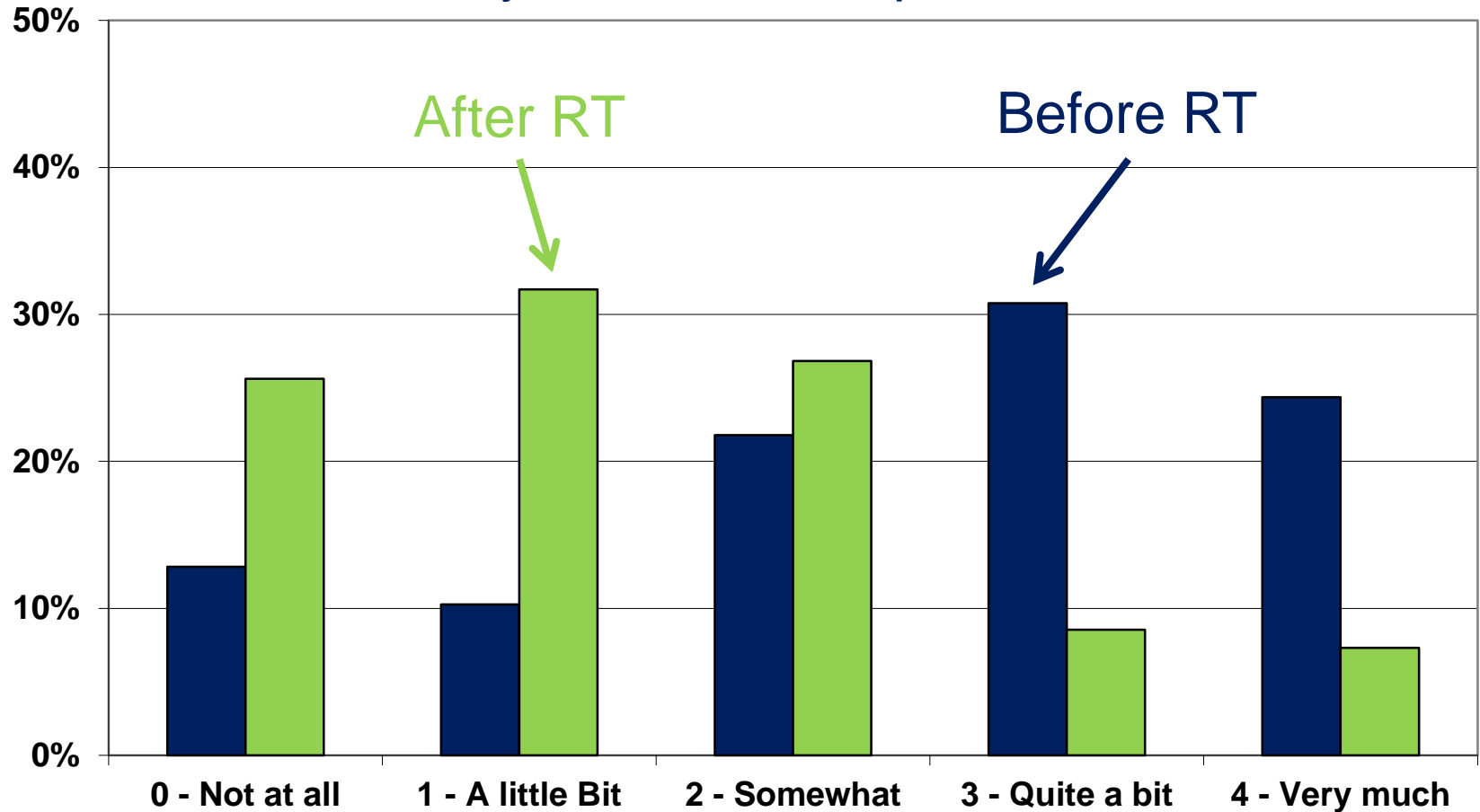


Distribution by Centre



Patients have less bone pain after RT

Do you have bone pain?



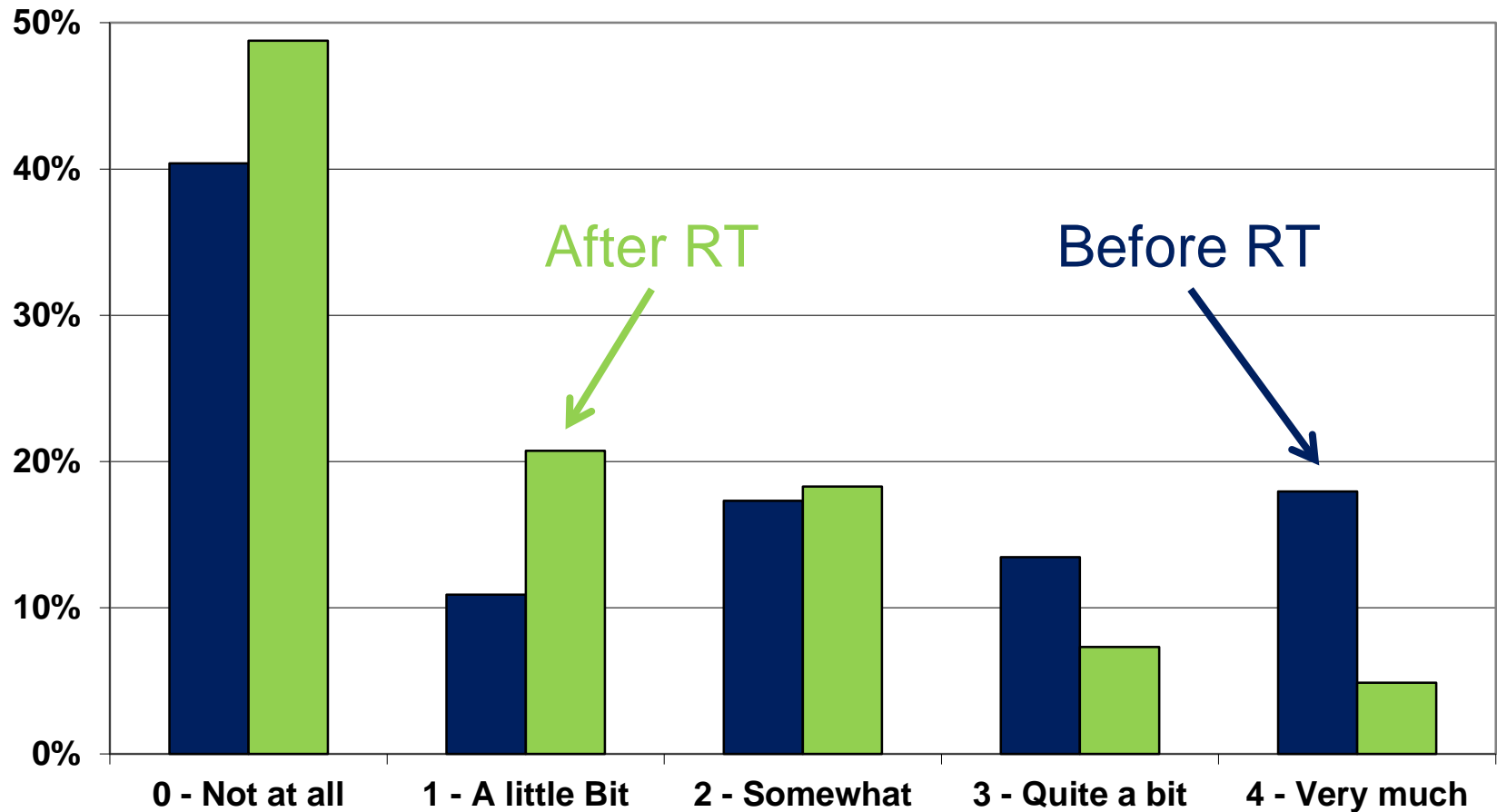
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Patients function better after RT

Does the pain interfere with your ability to care for yourself?



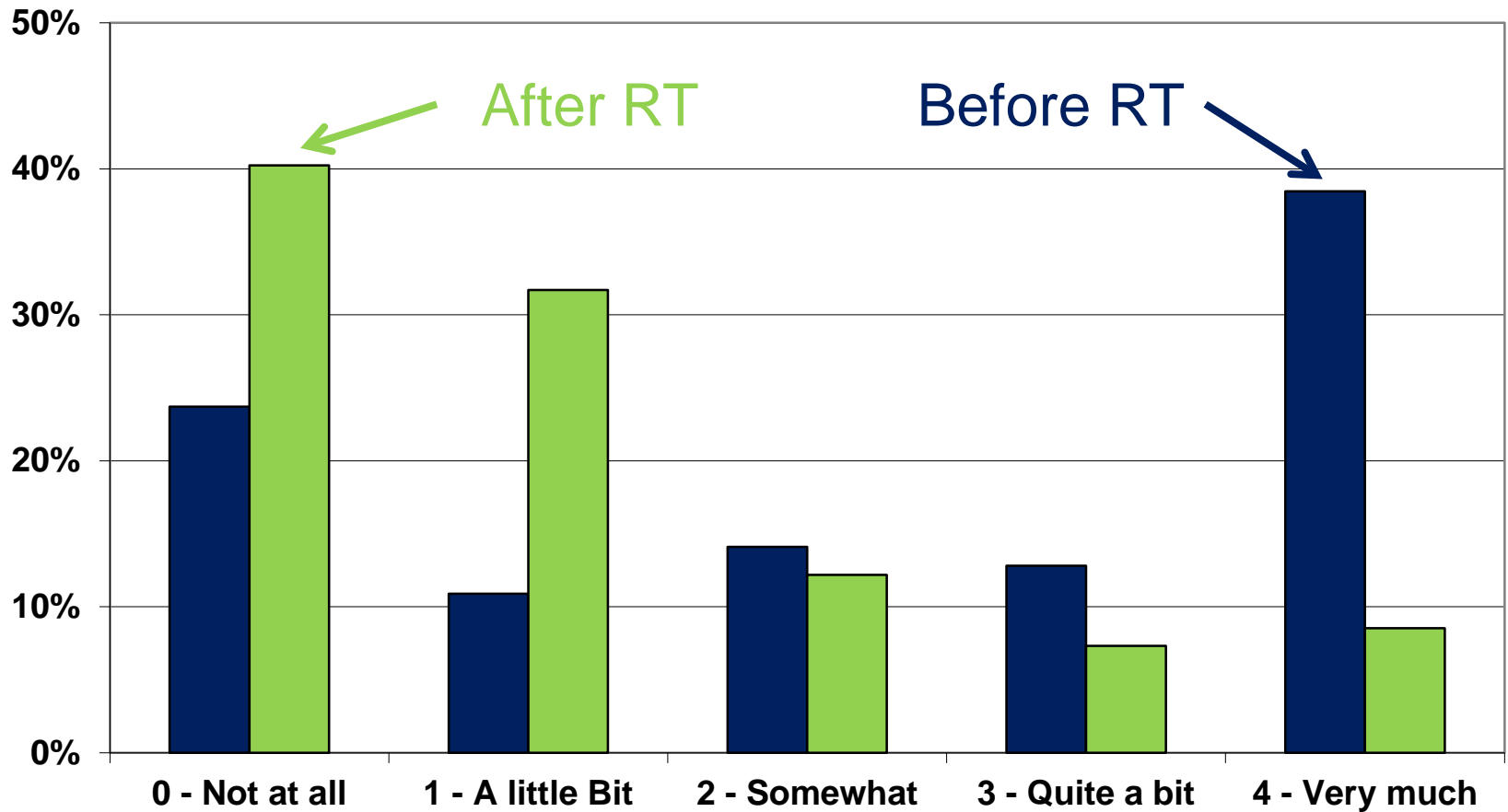
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Patients feel better after RT

Are you frustrated by your bone pain?

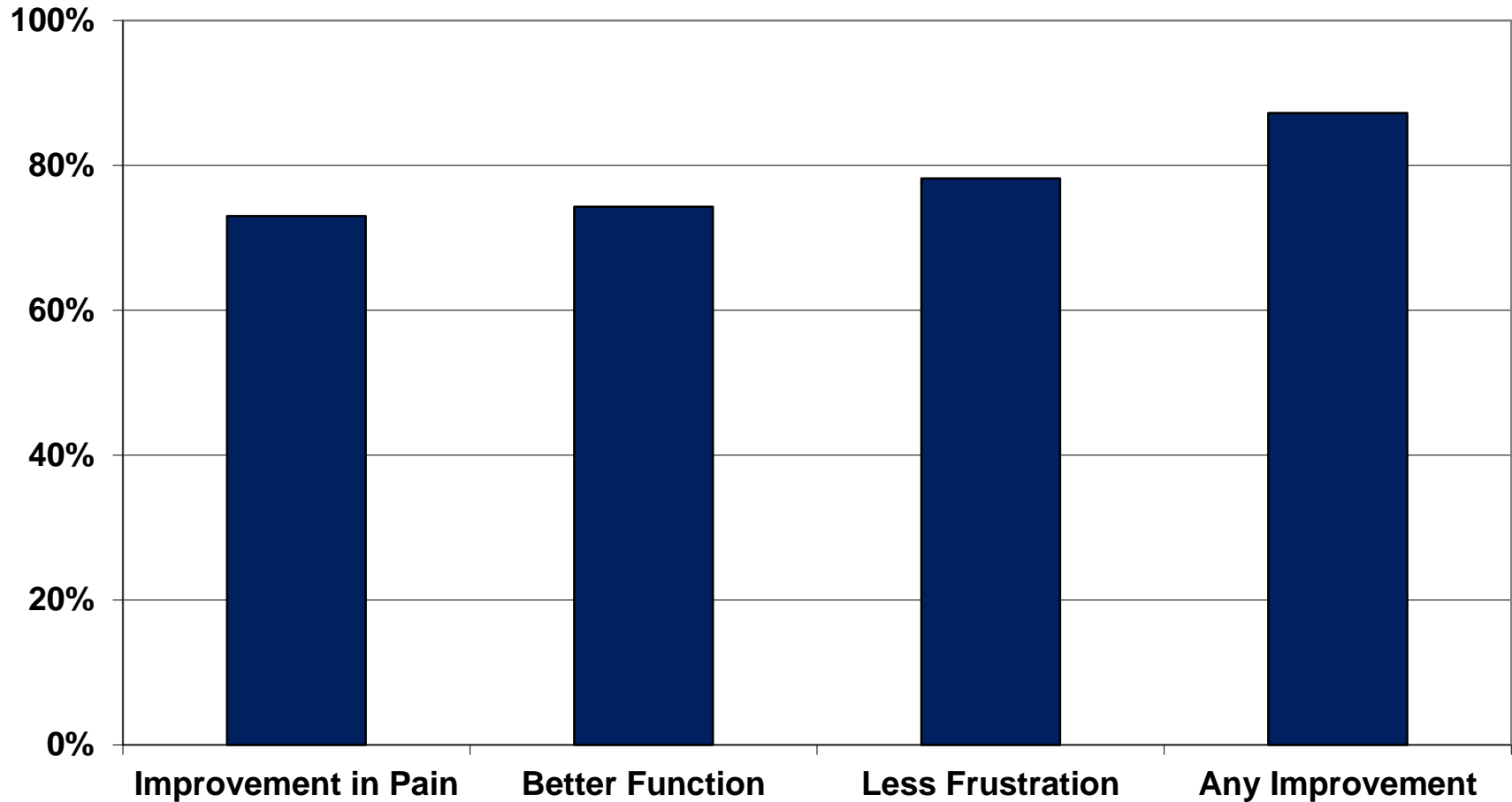


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87% of patients reported an improvement

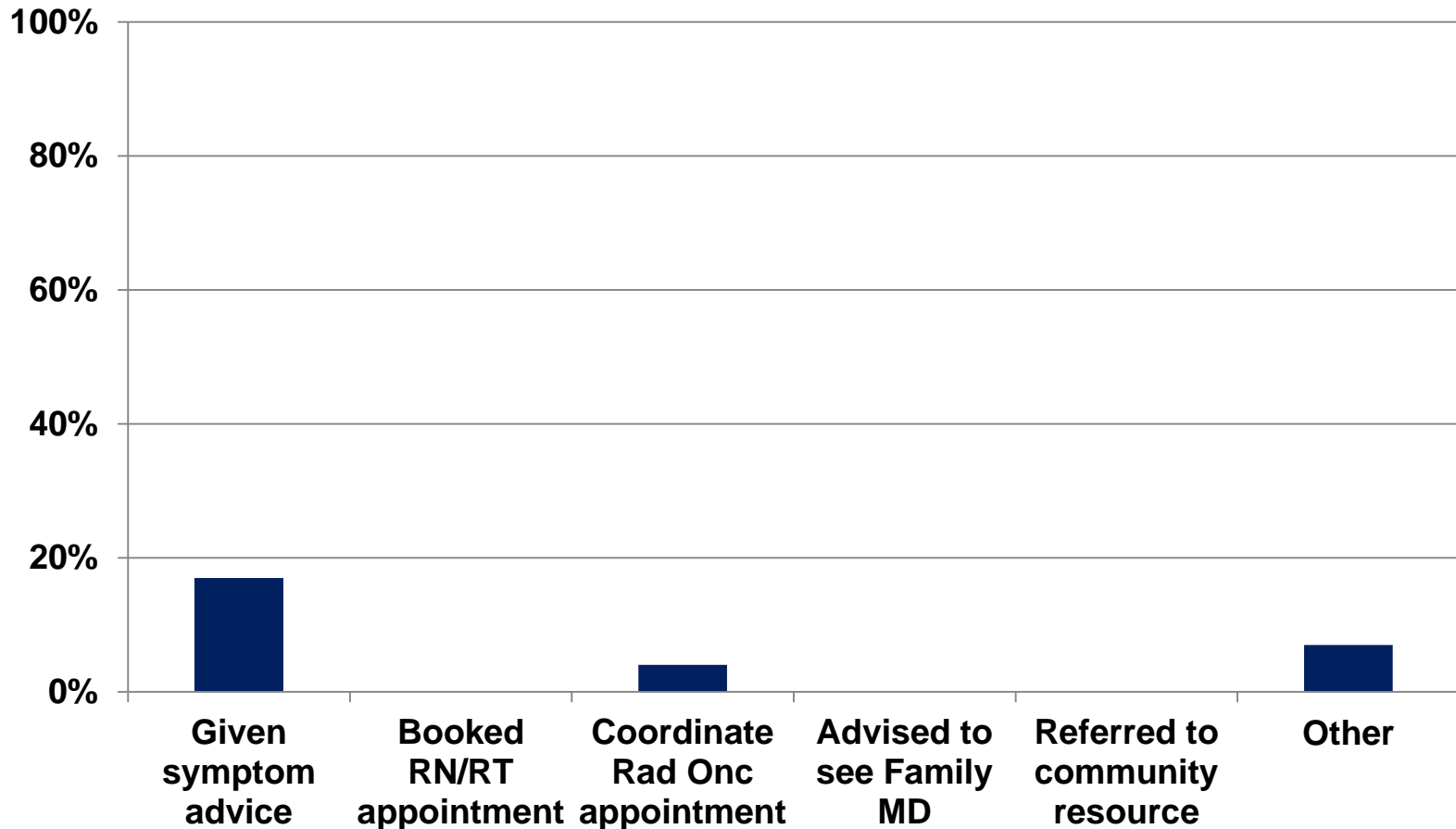


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¼ of patients are given additional support by RN

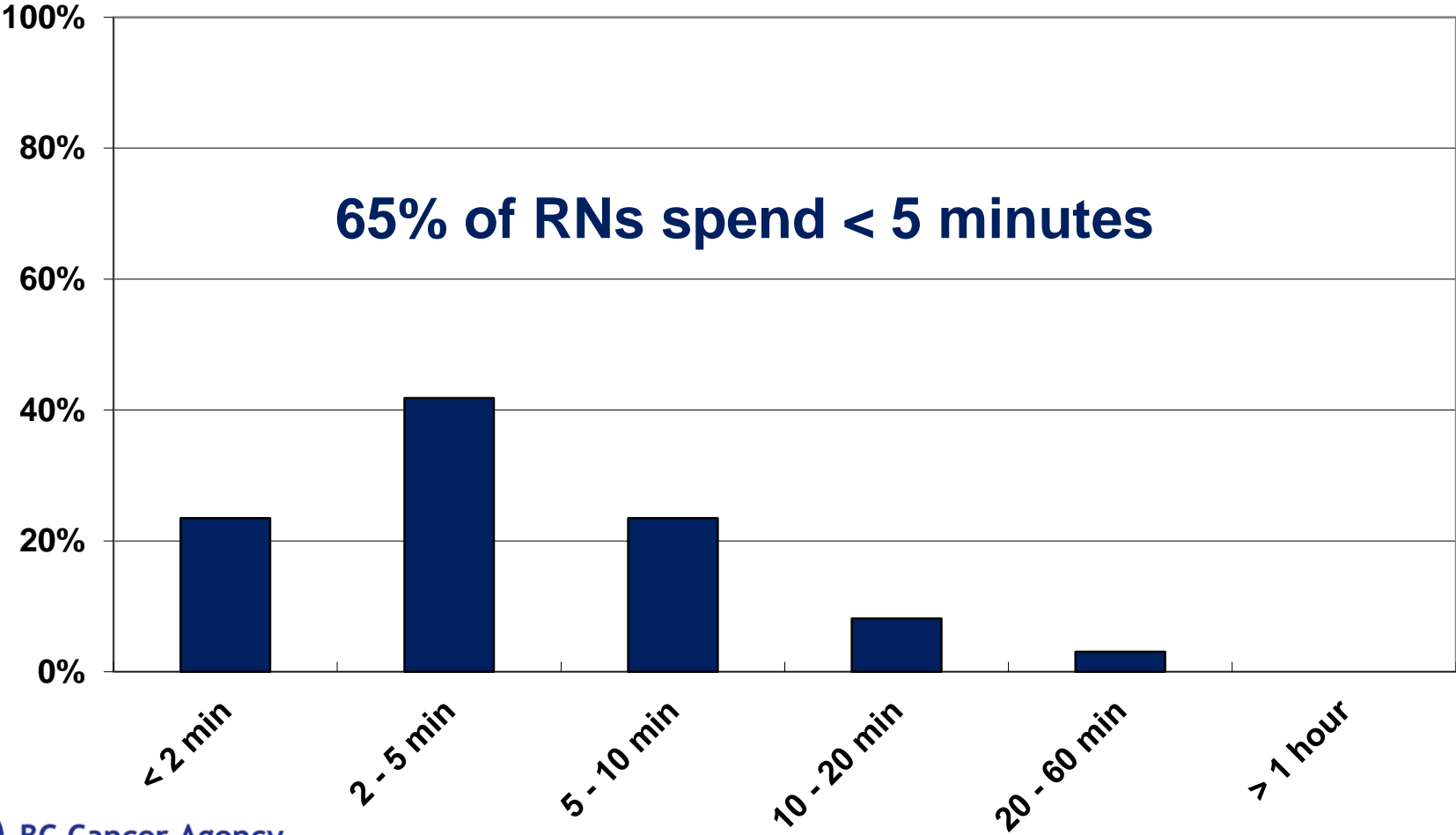


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Follow-up phone calls by RN are short



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Summery of bone met pilot

- Feasible to open in all 6 centres; accruing ~50 patients per week
- We found a large improvement in patient outcomes from RT
- Feasible to provide RN support
 - Most RN follow-up calls are < 5 minutes
 - Most concerns dealt with via symptom management guidelines
 - < 5% referred back to Rad Onc
- So in 2014 we decided to expand



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Where are we now?

Treatment Centre	Bone Metastases Follow-Up 4 weeks Post Radiation Therapy	Brain Metastases Follow-Up 2 weeks Post Radiation Therapy	Chest/Lung Metastases Follow-Up 4 weeks Post Radiation Therapy	Curative-Intent Gynecology Follow-up at each patient appointment; yearly for discharged patients	Radical Lung 4 weeks and 6 months; each subsequent follow-up
Abbotsford Centre	✓	✓	✓		✓
Centre for the North	✓	✓	✓	✓	✓
Centre for Southern Interior	✓	✓	✓		
Fraser Valley Centre	✓	✓	✓		
Vancouver Island Centre	✓	✓	✓	✓	
Vancouver Centre	✓	✓	✓		



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Example of Research that is possible

- Single Fraction RT is effective, but variably used

Table 4 Worldwide patterns of use of single-fraction radiation therapy for bone metastasis

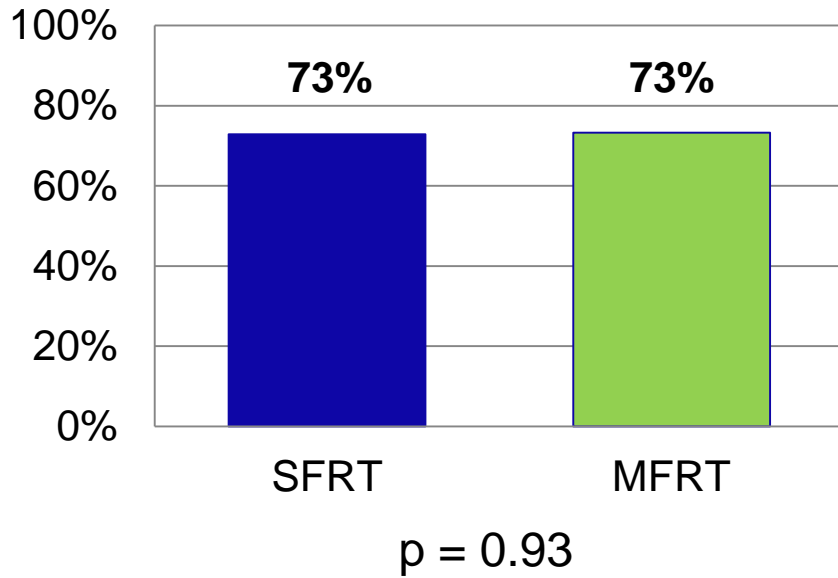
Study; year (ref)	Region	Study characteristics	Year(s) of study	No. of patients	No. of RT sites or courses treated	Proportion who receive SFRT								
						By primary tumor site				By site of bone metastases				
						All	GU/prostate	Breast	Lung	Other	Spine	Pelvis	Ribs/chest wall	Extremities and skull
Stevens et al; 1995 (27)	Australia	Single-center audit	1988	142	167	5%	-	-	-	-	-	-	-	-
Stevens et al; 1995 (27)	Australia	Single-center audit	1993	124	155	17%	-	-	-	-	-	-	-	-
Kong et al; 2007 (12)	Canada	Multi-center audit	1984-2001	44,884	74,432	34%	28-34%	32%	39%	27-36%	25%	-	-	-
Haddad et al; 2005 (24)	Canada	Retrospective, single institution cohort	1998-2002	-	882	32%	30%	32%	33%	44%	20%	36%	59%	36%
Thavarajah, et al; 2013 (15)	Canada	Bone metastases rapid access clinic in a tertiary hospital	2005-2012	-	2459	64%	80%	-	-	-	-	-	-	61%
Olson et al (current study)	Canada	Population-based, all cancers	2007-2011	8601	16,898	49%	56%	54%	47%	37%	39%	46%	78%	61%
Laugsand et al; 2012 (28)	Norway	Population-based, multi-center	1997-2007	8685	14,380	31%	38%	22%	40%	12-45%	19%	42%	-	43%
Needham et al; 1994 (29)	UK	Single-center audit	1991	105	-	41%	-	-	-	-	-	-	-	54%
Williams et al; 2006 (13)	UK	Multi-center audit	2003	400*	-	36%	-	-	-	-	-	-	-	-
Berawal et al; 2011 (14)	US	Multi-center audit	2003-2010	-	7905	4-13%	-	-	-	-	-	-	-	-
Bekelman et al; 2013 (5)	US	SEER, prostate cancer only	2006-2009	3050	-	3%	3%	-	-	-	-	-	-	-
Hess et al; 2012 (16)	US	Retrospective, multi-center, Breast and prostate cancer only	2008-2009	420	453	4%	4%	-	-	-	-	-	-	-

Example of Research that is possible

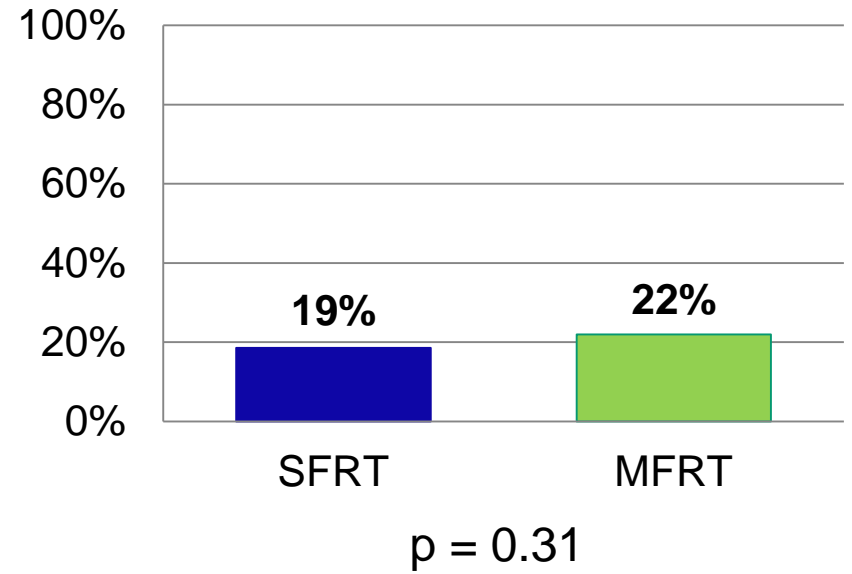
- Single Fraction (SF) RT is effective, but variably used
- Partially, because of funding, but also because the clinical trials often excluded patients with
 - Poor performance status
 - Complicate bone mets (e.g. fracture, cord compression)
- Therefore, we wanted to compare outcomes for SFRT versus multiple fraction (MF) RT

All Painful BM (n=968)

Partial Pain Response (improved by ≥ 1 point)

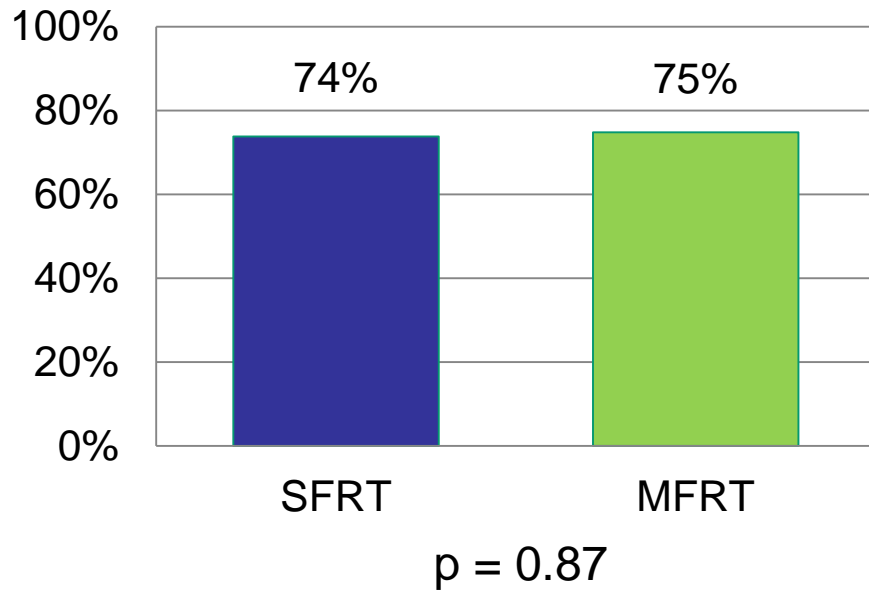


Complete Pain Response (follow-up score = 0)

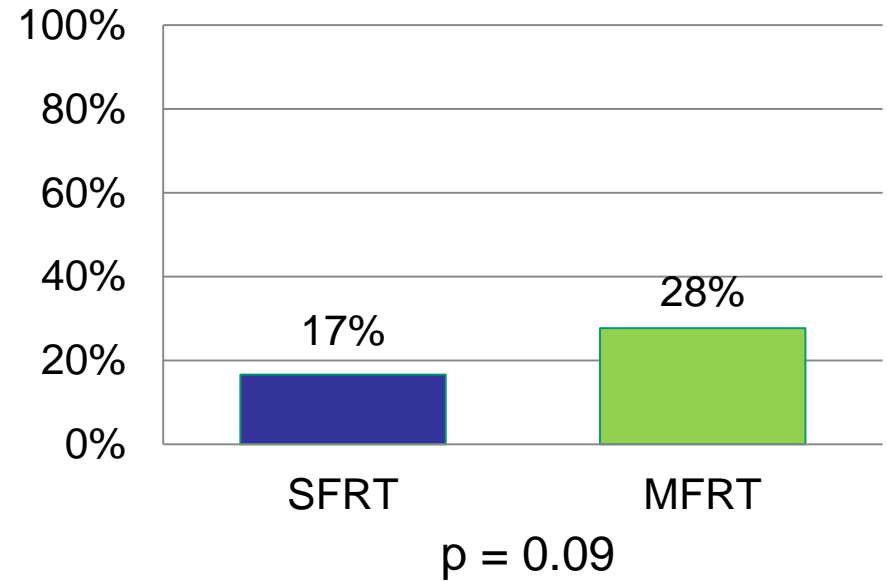


Complicated Painful BM (n=335)

Partial Pain Response



Complete Pain Response



POSI Key Messages

- This is not a research project, though research is possible from this initiative
- It is our new & novel way of providing care
- We are engaging patients
 - We are showing them we **care**
 - Their point-of-view will lead to improvements



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Data Entry and View: Why we choose to embed into our radiotherapy EMR

- Users don't have to open another program
- Use existing accounts to restrict/monitor data access
- No software to deploy/maintain



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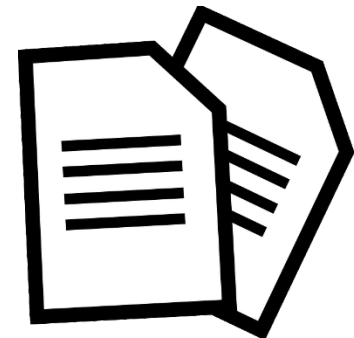
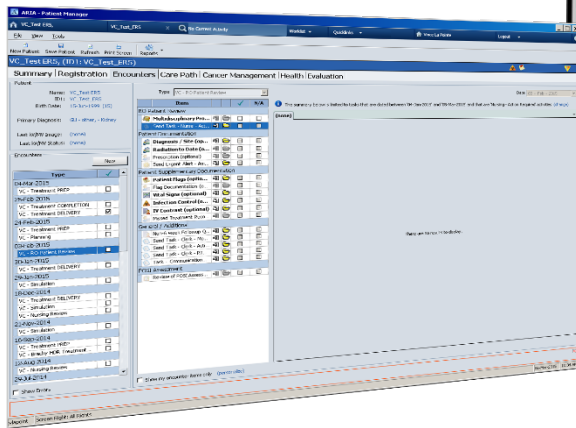
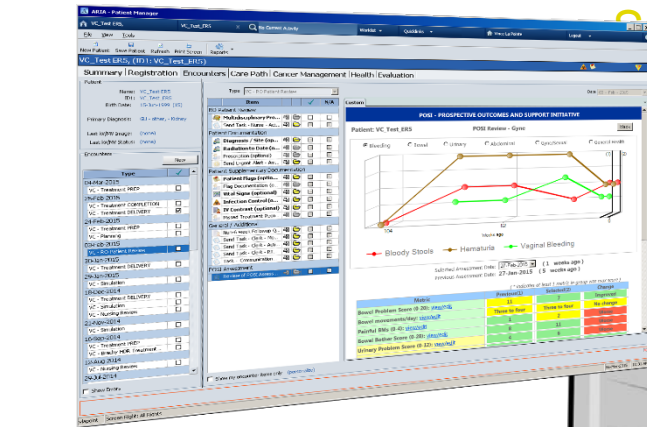
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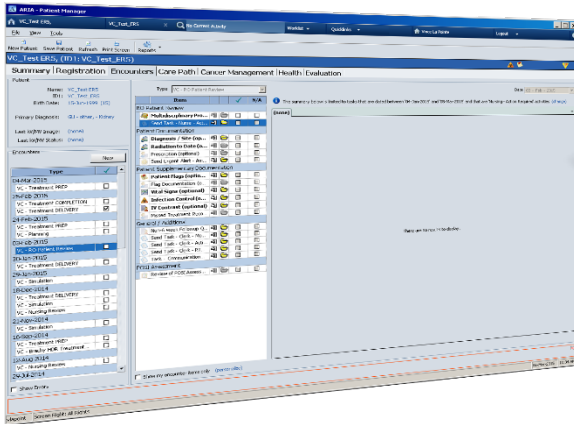
POSI Architecture

POSI:

SQL Server Database
ASP.Net Web App
on local intranet



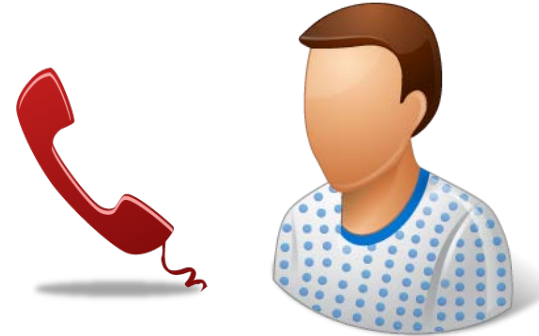
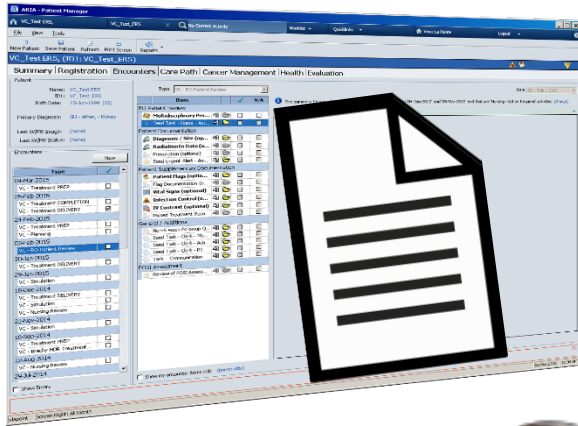
POSI Data Entry Options - Paper



ARIA workstation



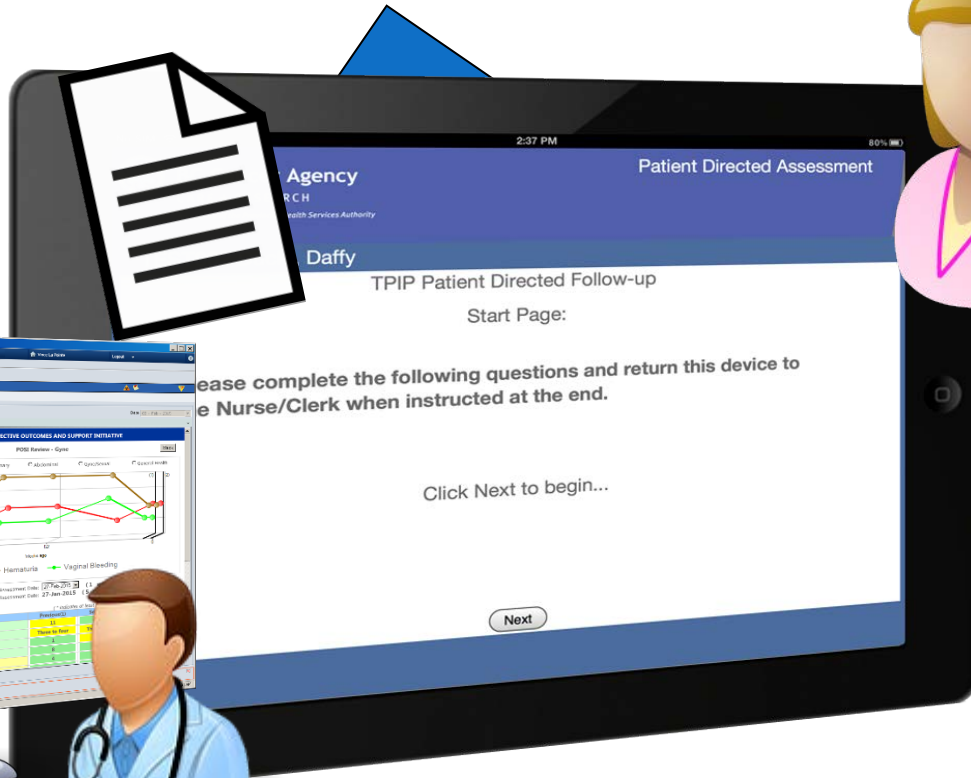
POSI Data Entry Options - Phone



ARIA workstation



POSI Data Entry Options - Tablets



ARIA user



e.g. gyne access

New Patient Save Patient Refresh Print Screen Reports

VC_Test ER5, (ID1: VC_Test_ER5)

Summary | Registration | Encounters | Care Path | Cancer Management | Health | Evaluation |

Patient

Name: VC_Test_ER5
ID1: VC_Test_ER5
Birth Date: 15-Jun-1999 (15)

Primary Diagnosis: GU - other, - Kidney

Last kW/MV Image: (none)
Last kW/MV Status: (none)

Encounters

New

Type	✓
03-Feb-2015	
VC - RO Patient Review	<input checked="" type="checkbox"/>
30-Jan-2015	
VC - Treatment DELIVERY	<input type="checkbox"/>
29-Jan-2015	
VC - Simulation	<input type="checkbox"/>
18-Dec-2014	
VC - Treatment DELIVERY	<input type="checkbox"/>
VC - Simulation	<input type="checkbox"/>
VC - Nursing Review	<input type="checkbox"/>
21-Nov-2014	
VC - Simulation	<input type="checkbox"/>
16-Sep-2014	
VC - Treatment PREP	<input type="checkbox"/>
VC - Brachy HDR Treatment...	<input type="checkbox"/>
12-Aug-2014	
VC - Nursing Review	<input type="checkbox"/>
29-Jul-2014	
VC - Treatment DELIVERY	<input type="checkbox"/>
02-Jul-2014	
VC - RO Contouring / Field Pl...	<input type="checkbox"/>

Type: VC - RO Patient Review

Item	✓	N/A
RO Patient Review		
Multidisciplinary Pro...	<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Nurse - Act...	<input type="checkbox"/>	<input type="checkbox"/>
Patient Documentation		
Diagnosis / Site (op...	<input type="checkbox"/>	<input type="checkbox"/>
Radiation to Date (o...	<input type="checkbox"/>	<input type="checkbox"/>
Prescription (optional)	<input type="checkbox"/>	<input type="checkbox"/>
Send Urgent Alert - Am...	<input type="checkbox"/>	<input type="checkbox"/>
Patient Supplementary Documentation		
Patient Flags (optio...	<input type="checkbox"/>	<input type="checkbox"/>
Flag Documentation (o...	<input type="checkbox"/>	<input type="checkbox"/>
Vital Signs (optional)	<input type="checkbox"/>	<input type="checkbox"/>
Infection Control (o...	<input type="checkbox"/>	<input type="checkbox"/>
IV Contrast (optional)	<input type="checkbox"/>	<input type="checkbox"/>
Missed Treatment Reco...	<input type="checkbox"/>	<input type="checkbox"/>
General / Additional		
Non-6 week Followup Q...	<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - Mo...	<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - Acti...	<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - RT...	<input type="checkbox"/>	<input type="checkbox"/>
Task - Communication...	<input type="checkbox"/>	<input type="checkbox"/>
POSI Assessment		
Review of POSI Assess...	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Custom

POSI - PROSPECT

Patient: VC_Test_ER5

All Outcome data for this patient: <add category>

No Outcome data for this patient

All Assessment data for this patient:

Category	Baseline Date	Assessment Date	View
Gyne		Jan 27 2015	View
Gyne		Sep 24 2014	View
Gyne		Mar 06 2014	View
Gyne		Sep 22 2013	View
Gyne		Jan 20 2013	View

1

2

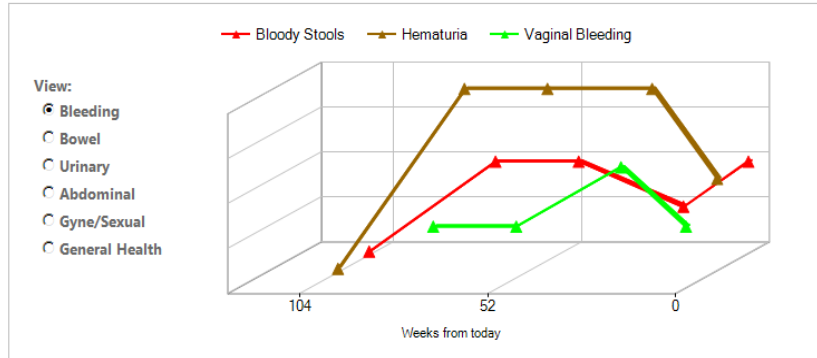
3

Type: VC - RO Patient Review

Item	✓	N/A
RO Patient Review		
Multidisciplinary Pro...	<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Nurse - Act...	<input type="checkbox"/>	<input type="checkbox"/>
Patient Documentation		
Diagnosis / Site (op...	<input type="checkbox"/>	<input type="checkbox"/>
Radiation to Date (o...	<input type="checkbox"/>	<input type="checkbox"/>
Prescription (optional)	<input type="checkbox"/>	<input type="checkbox"/>
Send Urgent Alert - Am...	<input type="checkbox"/>	<input type="checkbox"/>
Patient Supplementary Documentation		
Patient Flags (optio...	<input type="checkbox"/>	<input type="checkbox"/>
Flag Documentation (o...	<input type="checkbox"/>	<input type="checkbox"/>
Vital Signs (optional)	<input type="checkbox"/>	<input type="checkbox"/>
Infection Control (o...	<input type="checkbox"/>	<input type="checkbox"/>
IV Contrast (optional)	<input type="checkbox"/>	<input type="checkbox"/>
Missed Treatment Reco...	<input type="checkbox"/>	<input type="checkbox"/>
General / Additional		
Non-6 week Followup Q...	<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - Mo...	<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - Acti...	<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - RT...	<input type="checkbox"/>	<input type="checkbox"/>
Task - Communication...	<input type="checkbox"/>	<input type="checkbox"/>
POSI Assessment		
Review of POSIAssess...	<input type="checkbox"/>	<input type="checkbox"/>

Custom POSI - PROSP

Patient: VC_Test_ER5 POSI Review - Gyne



Assessment Date: 27-Jan-2015 (9 days ago)
 Previous Assessment Date: 24-Sep-2014 (134 days ago)

(* indicates at least 1 metric in group was max score)

Metric	Previous	This Assessment	Change
Bowel Problem Score (0-20): view/edit	6	11*	Worse
Bowel movements/day:	Five or more	Three to four	Improved
Painful BMs (0-4):	1	1	No change
Bowel Bother Score (0-28): view/edit	10	8	Improved
Urinary Problem Score (0-12): view/edit	8	4	Improved
Urinary Control Problems (0-4):	2	1	Improved
Pads/diapers per day (0-3):	1	1	No change
Urinary Bother Score (0-28): view/edit	12	9	Improved
Abdominal Pain (0-4):	1	0	Improved
Abdo pain interference (0-4):	0	0	No change
Abdo bowel problems (0-12): view/edit	3	2	Improved
Anti-diarrhea medication use (0-4):	1	0	Improved
Gyne Problem Score (0-20): view/edit	7	3	Improved
Sexual Activity (0-3):	A little bit	A little bit	No change
Sexual Problem Score (0-16): view/edit	4	1	Improved
Sexual enjoyment (0-3):	A little bit	A little bit	No change
General health (0-11):	7	9	Improved
Mobility problems (0-2):	0	0	No change
Self care problems(0-2):	0	0	No change
Problems with usual activities (0-2):	0	0	No change
Pain/discomfort (0-2):	1	1	No change
Anxiety/depression (0-2):	1	0	Improved

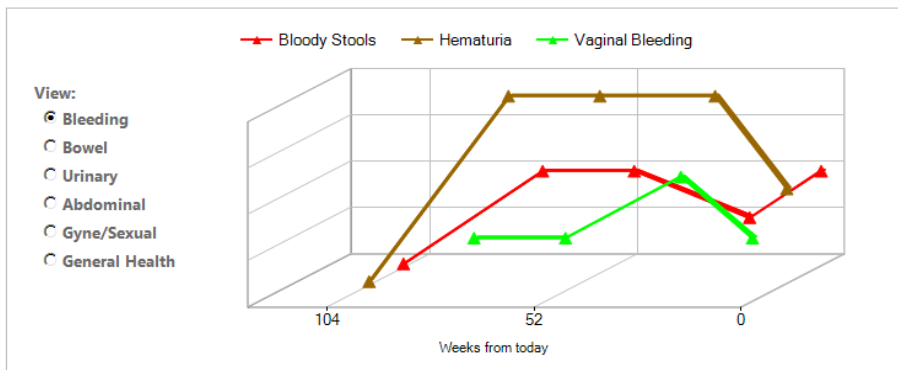
Type VC - RO Patient Review

Item			✓	N/A
RO Patient Review				
Multidisciplinary Pro...			<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Nurse - Act...			<input type="checkbox"/>	<input type="checkbox"/>
Patient Documentation				
Diagnosis / Site (op...			<input type="checkbox"/>	<input type="checkbox"/>
Radiation to Date (o...			<input type="checkbox"/>	<input type="checkbox"/>
Prescription (optional)			<input type="checkbox"/>	<input type="checkbox"/>
Send Urgent Alert - Am...			<input type="checkbox"/>	<input type="checkbox"/>
Patient Supplementary Documentation				
Patient Flags (optio...			<input type="checkbox"/>	<input type="checkbox"/>
Flag Documentation (o...			<input type="checkbox"/>	<input type="checkbox"/>
Vital Signs (optional)			<input type="checkbox"/>	<input type="checkbox"/>
Infection Control (o...			<input type="checkbox"/>	<input type="checkbox"/>
IV Contrast (optional)			<input type="checkbox"/>	<input type="checkbox"/>
Missed Treatment Reco...			<input type="checkbox"/>	<input type="checkbox"/>
General / Additional				
Non-6 week Followup Q...			<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - Mo...			<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - Acti...			<input type="checkbox"/>	<input type="checkbox"/>
Send Task - Clerk - RT...			<input type="checkbox"/>	<input type="checkbox"/>
Task - Communication...			<input type="checkbox"/>	<input type="checkbox"/>
POSI Assessment				
Review of POSIAssess...			<input type="checkbox"/>	<input type="checkbox"/>

Custom

Patient: VC_Test_ER5

POSI Review - Gyne



- View:
- Bleeding
 - Bowel
 - Urinary
 - Abdominal
 - Gyne/Sexual
 - General Health

Assessment Date: 27-Jan-2015 (9 days ago)

Previous Assessment Date: 24-Sep-2014 (134 days ago)

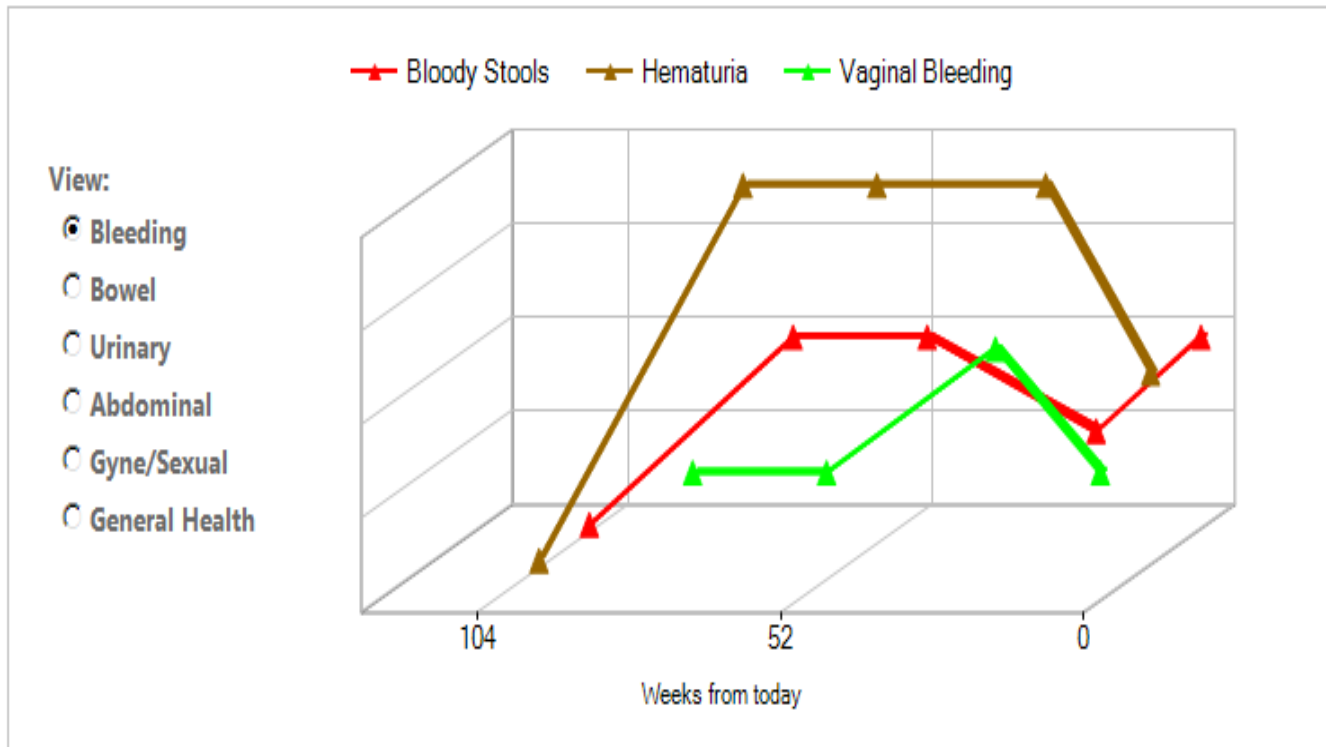
(* indicates at least 1 metric in group was max score)

Metric	Previous	This Assessment	Change																																				
Bowel Problem Score (0-20): hide	6	11*	Worse																																				
<table border="1"> <thead> <tr> <th></th> <th>Rarely or never</th> <th>About once a week</th> <th>More than once a week</th> <th>About once a day</th> <th>More than once a day</th> </tr> </thead> <tbody> <tr> <td>Rectal urgency</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Uncontrolled leakage</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> </tr> <tr> <td>Watery bowel movements</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Bloody stools</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Crampy pain</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </tbody> </table>					Rarely or never	About once a week	More than once a week	About once a day	More than once a day	Rectal urgency	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uncontrolled leakage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Watery bowel movements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Bloody stools	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Crampy pain	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Metric	Previous	This Assessment	Change																																				
Bowel movements/day:	Five or more	Three to four	Improved																																				
Painful BMs (0-4):	1	1	No change																																				
Bowel Bother Score (0-28): view/edit	10	8	Improved																																				
Urinary Problem Score (0-12): view/edit	8	4	Improved																																				
Urinary Control Problems (0-4):	2	1	Improved																																				
Pads/diapers per day (0-3):	1	1	No change																																				
Urinary Bother Score (0-28): view/edit	12	9	Improved																																				
Abdominal Pain (0-4):	1	0	Improved																																				
Abdo pain interference (0-4):	0	0	No change																																				
Abdo bowel problems (0-12): view/edit	3	2	Improved																																				
Anti-diarrhea medication use (0-4):	1	0	Improved																																				
Gyne Problem Score (0-20): view/edit	7	3	Improved																																				

e.g. gyne access

Patient: VC_Test_ER5

POSI Review - Gyne



Assessment Date: (9 days ago)

Outline

- History
- POSI bone mets pilot results
- Examples of comparative effectiveness research possible with POSI
- Demo of data entry and display
- **Lessons learned / reasons for success**



BC Cancer Agency

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An agency of the Provincial Health Services Authority

What have we learned so far

- Feasible to implement province wide & expand to other sites
 - Need to allow flexibility for different approaches at each centre
- Brain metastases questions were more distressing for RTs to ask
 - Led to change in questions
 - Led to change in format (iPad entry) (i.e. patient collection, not provider collection)
- ~ 5% of patients shortly after treatment would benefit from psychosocial assessment



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Why I think POSI was a success

- Front-line provider buy-in
- Province-wide start in one tumour site
- Cooption (cooperation and competition)
 - Monthly meetings where we compared accrual
 - Shared challenges/success between centres
- Clinically useful
- Flexible & allowed different approaches at different sites



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POSI Future Steps

- Continue expansion to radical sites
- Expand data collection to internet entry
- Expand to other disciplines
 - SLP for H&N cancer patients
 - Peri-operatively with surgeon access
- Send data to FP offices EMR (and vice versa?)



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Canadian Cancer Society
Société canadienne du cancer



Cancer Care Ontario
Action Cancer Ontario