



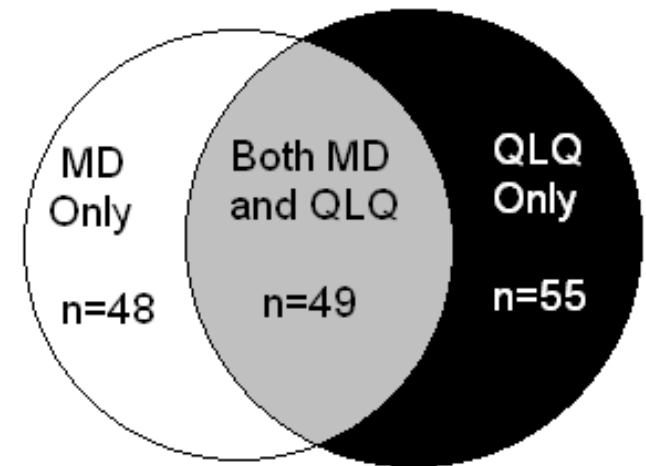
**A Novel Computerized System Makes Patient
Reported Symptom and QOL Outcomes Available
in Time for Radiotherapy Office Visits
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E. K. Fromme, T. Kenworthy-Heinige, M. R. Hribar, S. J. Wang, L. M. Nail,
C. R. Thomas, Oregon Health & Science University, Portland, OR

The problem:

- Your patients have a lot of symptoms
- Many effective symptom management treatments exist but are not utilized
- Symptoms are subjective and unless the patient brings them up or you ask there's no way for you to know
- Time is limited
- Validated measures exist
- Prior studies all in chemotherapy patients

Number of new or worsened symptoms identified by MD, Patient (via QLQ questionnaire), or both



Fromme et al. 2004 J Clin Onc 1;22(17):3485-90.

Purpose/ Methods

- Develop and test a novel touch-screen computer application that makes printed summaries of patient-reported symptom, function, and quality-of-life information
- Tested this in a randomized controlled trial
- Intervention: got symptom summary vs. did not get symptom summary

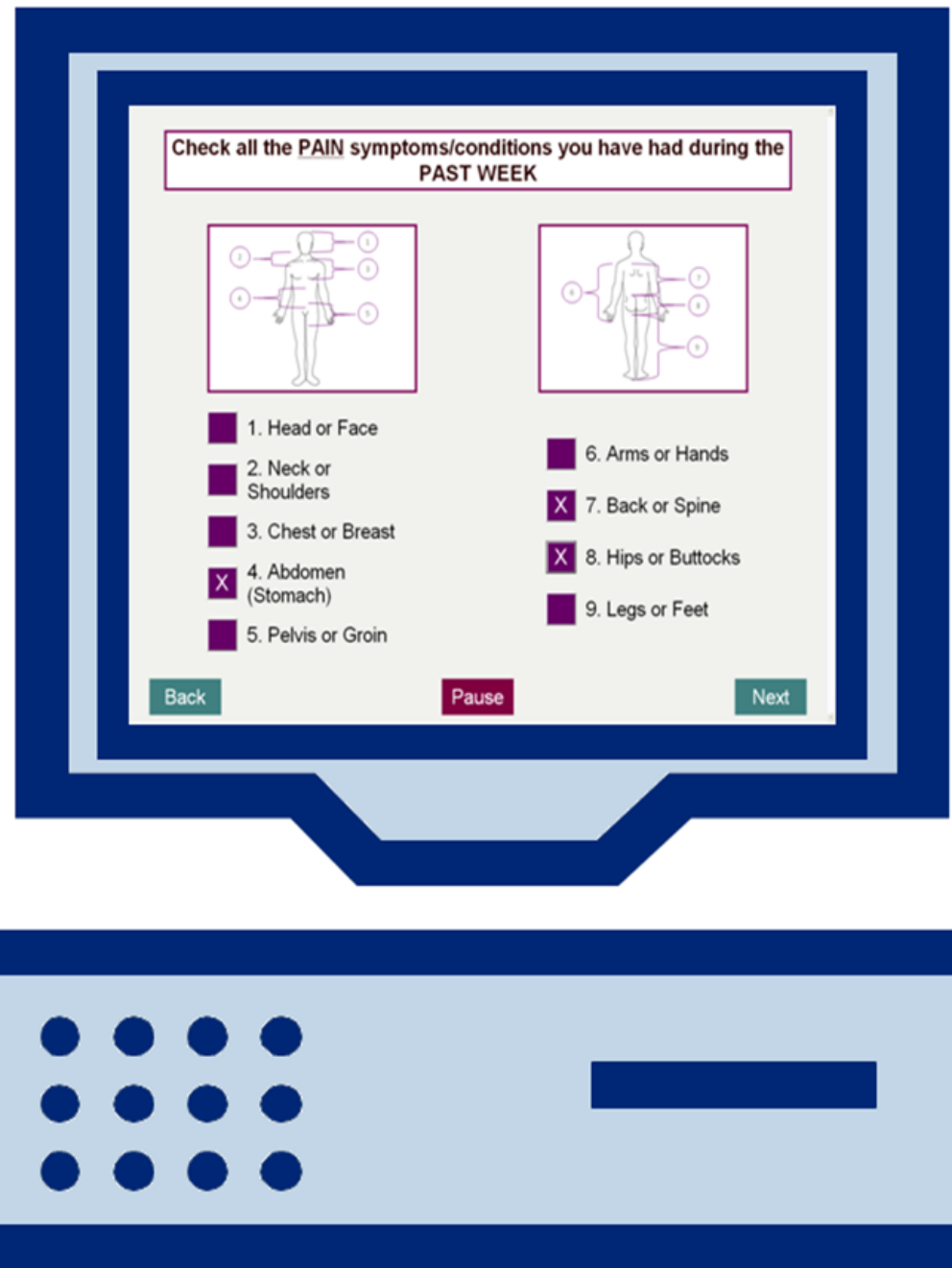


Fig. 1

Materials/ Methods:

Patients

- Starting radiotherapy for cancer at OHSU
- Any tumor type
- Planned treatment involved lasted at least 4 weeks

Outcomes

- Doctor-patient communication
- Symptom management
- Symptom burden
 - MSAS-GDI

The image shows a digital interface for rating symptom severity. At the top, a text box asks: "Please rate the severity of the following conditions over the PAST WEEK on a scale of 0 (none) to 10 (worst possible)". Below this, there are three sections, each with a title and a horizontal scale of 11 buttons (0-10). The first section is "Pain in Abdomen (Stomach)" with button 3 selected. The second is "Pain in Back or Spine" with button 2 selected. The third is "Pain in Hips or Buttocks" with button 2 selected. At the bottom of the interface are three buttons: "Back" (green), "Pause" (red), and "Next" (green). Below the screen is a control panel with a 3x4 grid of blue circular buttons and a long blue rectangular button.

Fig. 2

NAME		Non-summary Group / Summary Group								DATE	05/25/2010-09/30/2010				SITE	DOCTOR				N=5												
	SYMPTOM	↑↓					SYMPTOM	↑↓					SYMPTOM	↑↓																		
			1	2	3	4			1	2	3	4			1	2	3	4														
Misc.	KPS*	↑↓	89	89	93	87	90	84	91	83	Quality of Life**	↑↓	5.6	5.4	5.6	5.0	5.4	5.1	5.3	4.9	Pain Control**	↑↓	5.6	5.2	5.9	5.0	5.3	5.4	5.2	5.1		
Pain	Head/Face	↑↓	1.0	3.6	2.7	3.0	1.0	4.6	4.5	3.4	Neck/Shoulders	↑↓	5.5	5.6	4.6	3.4	4.2	5.3	5.8	4.8	Chest/Breast	↑↓	5.7	0.9	5.3	5.5	4.0	0	4.6	4.5		
	Abdomen(Stomach)	→↓	4.0	6.3	3.6	2.6	4.0	4.0	4.0	3.3	Pelvis/Groin	↑↓	2.0	4.0	3.5	4.0	3.5	1.0	2.8	0.5	Arms/Hands	→↓	9.0	5.5	4.8	3.0	6.0	2.0	6.0	5.0		
	Back/Spine	↑↑	3.5	4.8	5.0	2.7	3.0	3.7	5.5	4.0	Hips/Buttocks	↑↓	4.5	5.8	5.5	5.5	7.0	5.7	4.2	5.0	Legs/Feet	↑↑	5.7	7.2	4.8	5.2	4.5	5.0	6.0	5.8		
General	Fever	→↓	0	6.0	0	0	0	0	0	1.0	Sweats	↑↓	4.0	5.1	4.2	4.9	5.0	4.3	3.0	4.3	Weight Loss	↑↓	8.0	6.0	0	4.7	1.0	5.3	9.0	4.4		
	Difficulty Sleeping	↑↓	4.2	4.6	4.2	5.3	4.3	4.4	4.9	4.3	Feeling Drowsy	↑↓	2.8	4.7	4.8	4.6	4.4	5.0	3.6	5.1	Lack of Energy	↑↓	2.8	4.4	4.6	4.6	4.6	4.6	4.3	4.7		
	Mouth Sores	→↓	2.0	6.3	0	3.5	0	5.9	0	4.7	Dry Mouth	↑↓	3.0	3.9	4.0	4.6	3.4	5.1	6.7	4.6	Taste Changes	↑↑	0	3.0	3.5	3.6	0	5.7	3.5	6.1		
	Short of Breath	↑→	2.0	3.0	0	4.5	0	5.0	4.0	5.0	Cough	↑↓	3.3	5.5	5.0	4.0	3.5	4.0	4.0	4.3	Vision Changes	↑↑	2.3	4.5	3.5	2.5	0	2.5	2.0	4.0		
	Hearing Changes	→↓	0	1.0	5.0	4.5	0	4.3	0	2.5	Lack of Appetite	↑↓	3.5	4.6	2.2	4.5	4.2	5.6	4.5	4.7	Nausea	↑↑	4.0	4.6	2.6	4.8	3.0	5.1	4.3	5.2		
	Vomiting	↑↓	0	3.0	4.0	4.0	3.0	7.0	0	3.3	Constipation	↑↓	3.0	3.9	2.7	5.3	2.5	6.2	3.8	5.1	Diarrhea	↑↓	1.7	3.8	2.5	3.0	6.5	5.7	3.0	5.1		
	Urination problems	↑↓	2.8	4.8	3.3	3.3	4.3	5.2	4.6	4.9	Sexual Problems	↑→	5.0	2.0	6.3	8.0	6.7	9.0	4.8	9.0	Appearance Concern	↑↓	4.0	4.5	4.7	6.0	4.0	5.5	7.0	5.3		
	Dizziness	↑↓	2.0	4.0	5.3	6.0	2.7	6.3	3.0	3.8	Concentration	↑↑	0	5.5	0	4.0	5.0	5.1	1.0	6.0	Numbness/Tingling	↑→	5.0	5.2	5.3	3.0	6.5	4.3	5.5	4.3		
	Arms/Legs Swelling	↑↓	2.0	6.0	2.0	5.0	2.0	0	0	5.0	Itching	↑↓	3.0	3.3	0	3.5	4.0	4.2	5.3	4.0	Hair Loss	↑↓	0	0	0	4.0	2.0	6.0	0	4.0		
	Skin	Pinkness of Skin	↑↑	0	1.5	2.0	3.0	2.7	2.0	3.0	3.5	"Sunburn" Skin	→→	3.0	0	2.7	3.0	4.5	4.0	4.5	4.0	Peeling Skin	↑↑	3.0	8.0	0	1.0	1.0	2.0	7.0	3.6	
	Site Specific																															
	Emotional Function	Feeling Sad	↑↓	3.7	4.1	4.5	6.0	5.0	5.6	4.0	6.4	Physical Function	Rating				Trouble with strenuous activities	↑↓	1.3	1.9	1.4	1.9	1.4	2.0	1.6	1.9						
		Feeling Worried	→↓	3.4	5.5	4.5	4.3	4.0	6.0	4.0	6.2		1-None	Trouble taking a LONG walk	↑→	1.5	2.2	1.7	2.0	1.7	2.1	1.9	2.1									
Feeling Irritable		↑↓	3.0	4.3	4.0	4.3	5.5	4.8	4.6	6.0	2-A Little Bit		Trouble taking a SHORT walk	→↓	1.2	1.6	1.3	1.5	1.3	1.7	1.3	1.6										
Feeling Nervous		↑↓	4.5	5.4	3.5	4.5	4.0	5.5	3.0	5.8	3-Quite a Bit		Stay in bed/chair during the day	→↓	1.2	1.7	1.5	1.7	1.5	1.7	1.5	1.9										
ARROWS & DASHES		↑ Increase from previous session		↓ Decrease from previous session						4-Very Much			Need help with self care		→→	1.0	1.1	1.0	1.1	1.1	1.2	1.1	1.2									
Other Concerns	Free text: This section displays information about OTHER symptoms or concerns, which the patient may have, that were not asked or listed on this report. The information in this view would display the report sessions by date.																															
Rating Key	COLOR	SYMPTOM Severity								Miscellaneous																						
		Pain-General-Skin-Specific-Emotion								*KPS (Performance Status)								**QOL and Pain Control Satisfaction														
	WHITE	None to Mild (0)								Normal to Mostly Normal (80-100)								Excellent (6-7)														
	GRAY	Mild (1-3) to Moderate (4-6)								Unable to work; Some assistance (50-70)								Moderate (3-5)														
BLACK	Severe (7-10)								Unable to care for self (30-40)								Very Poor (1-2)															

Fig. 4

Results

- 112 subject (52 control/60 intervention)
 - 83% consented, 77% participated & analyzed
- 28.5% female, mean age 60 years (SD 11)
- Cancer type: 37% prostate, 12% colorectal, 18% head and neck, 18% breast, 15% other
- Stage: I (21%), II (37%), III (23%), IV (18%)
- Concurrent chemo: 34%
- Prior Radiotherapy: 9.8%
- Randomization successful

Lots of symptoms

- 80.3% visits reported pain
 - 34.9% moderate pain, 12.1% severe pain.
- Other symptoms (total, mod-severe)

Top 5 Symptoms	Total %	%mod severe	Other Symptoms	Total %	%mod severe
Lack of energy	60.3	38.9	Nausea	21.3	12.3
Dry mouth	35.3	24.6	Constipation	20.3	13.6
Difficulty sleeping	34.4	23.4	Cough	15.4	8.9
Lack of appetite	30.6	21.0	Short of breath	11.8	7.6
Urination probs	28.1	16.8	Weight loss	13.3	7.1

Providing symptoms summaries didn't reduce symptom burden

- HLM analysis looked at symptom burden longitudinally across 4 visits
 - Covariates controlled for: Age, gender, stage
 - No significant difference between intervention and control for the main outcomes of interest
 - Memorial Symptom Assessment Scale Global Distress scale which combines 10 common symptoms
 - Also looked at pain severity, pain distress, and psychological distress

Why not? Not a big difference in symptom management (prescribing)

- Assessed symptom management by physicians by reviewing prescriptions written for pain or symptom mgmt
 - New medicine started or dose changed at only 15.4% (43/280) of control vs. 20.4% (65/319) of intervention visits (chi square, $p=.07$)
 - Glass $\frac{1}{2}$ full interpretation, a 32% increase!
 - Pain management at 9.5% of visits
 - Also not significant in logistic regression controlling for age, gender, and stage

Conclusions

- Symptoms were prevalent, however prescribing for symptoms occurred with only 15-20% of visits
 - Moderate-Severe pain 47% vs. Pain mgmt 9.5%
- Providing summaries of patient-reported symptoms and QOL did not improve symptom control
 - Trend towards increased prescribing
- Haven't completed analysis of communication, effectiveness of symptom management prescribing

Implications?

- Patient level randomization problematic due to cross-contamination
- If I (or you) do this as an RO1
 - Randomize by practice site
 - Give the summaries along with symptom management algorithms to the nurses too!

Top 9 most common symptoms at baseline (left) and after two weeks of radiotherapy (right)

Baseline Symptom	%	Intensity	Symptom after 2 weeks	%	Intensity
Lack of energy	49	4.24	Lack of energy	64	4.66
Difficulty Sleeping	35	4.41	Dry Mouth	44	5.15
Pain in neck or Shoulders	31	5.08	Pain in neck or Shoulders	37	4.76
Feeling Drowsy	31	4.56	Difficulty Sleeping	35	4.74
Dry Mouth	30	4.16	Lack of Appetite	32	5.48
Feeling Worried	30	4.48	Urination Problems	26	4.72
Feeling Irritable	26	4.5	Constipation	26	4.90
Pain in Back or Spine	25	5.62	Pain in Hips or Buttocks	26	5.8
Sweats	25	4.67	Pain in Back or Spine	24	4.95