Purpose: Clinical trials in radiation therapy-induced nausea and vomiting (RINV) appear to have varied methodologies, endpoints and outcome measures. This variability hinders implementation of trial results. A comprehensive analysis of RINV trial design elements is lacking.

Methods and Materials: Ovid versions of the Cochrane Central Register of Controlled Trials, the Cochrane Database of Systematic Reviews, EMBASE and MEDLINE to first quarter 2011 were searched for randomized trials of RINV management strategies.

Results: From 599 references in the initial database search we selected 34 trials for analysis that collectively randomized 4529 patients. Twenty-eight trials (82%) were published prior to the year 2000. Twenty-seven trials (79%) involved multiple fraction radiotherapy (RT) and seven (21%) single fraction RT. Twenty-four trials (71%) evaluated prophyllactic interventions and nine (26%) rescue interventions. Thirty-three trials (97%) evaluated pharmacologic interventions. Nausea was not defined in any trial but was reported as a stand-alone symptom in 26 trials (76%) and was graded in 20 (59%), with discrete choice categorical qualitative scales being the most common method. Vomiting was defined in three trials (9%), reported as a stand-alone symptom in six (17%) and was graded in seven (21%) single fraction, RT. Twenty-one trials (62%) created compound symptom measures that combined individual symptoms. Fifteen trials (44%) reported on “emetic episodes/events” but only nine of these defined them. Seventeen trials (50%) reported on complicated endpoints such as “response,” “control” and “success” that factored in multiple symptom or compound symptom measures, but seven of these did not define them comprehensively. Only 10 trials (29%) defined a primary endpoint a priori.

Conclusions: Methodologies, endpoints and outcome measures varied considerably among 34 randomized trials in RINV.

171 PROPHYLAXIS OF RADIATION-INDUCED NAUSEA AND VOMITING: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Purpose: To systematically review the efficacy and safety of various antiemetics in prophylaxis of radiation-induced nausea and vomiting (RINV).

Methods and Materials: A literature search of Ovid MEDLINE, EMBASE and Cochrane CENTRAL was performed to identify randomized controlled trials (RCTs) that evaluated the efficacy of prophylaxis for RINV in patients receiving radiotherapy to abdomen/pelvis, including total body irradiation (TBI). Primary endpoints were complete control of nausea and complete control of vomiting during acute and delayed phases. Secondary endpoints included use of rescue medication, quality of life and incidence of adverse events.

Results: Seventeen RCTs were identified. Among patients receiving radiotherapy to abdomen/pelvis, our meta-analysis showed that 5-hydroxytryptamine-3 receptor antagonists (5HT3 RAs) were significantly more efficacious than placebo and dopamine antagonists in both complete control of vomiting (OR 0.49, 95% confidence interval [CI] 0.33-0.72 and OR 0.17, 95% CI 0.05-0.58 respectively) and complete control of nausea (OR 0.43, 95% CI 0.26-0.70 and OR 0.46, 95% CI 0.24-0.88 respectively). 5HT3 RAs were also more efficacious than rescue therapy and dopamine antagonists plus dexamethasone. The addition of dexamethasone to 5HT3 RA compared to 5HT3 RA alone provides a modest improvement in prophylaxis of RINV. Among patients receiving TBI, 5HT3 RA was more effective than other agents (placebo, combination of metoclopramide, dexamethasone and lorazepam).

Conclusions: 5HT3 RAs are more effective than other antiemetics for prophylaxis of RINV in patients receiving radiotherapy to abdomen/pelvis and TBI. Future RCTs should investigate the efficacy of newer agents such as aprepitant in addition to 5HT3 RAs in prophylaxis of RINV during both acute and delayed phases.

172 FEASIBILITY AND UTILITY OF PATIENT REPORTED OUTCOME COLLECTION IN A PROVINCIAL PROGRAM

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Purpose: The British Columbia Cancer Agency radiotherapy (RT) program started the Prospective Outcomes and Support Initiative (POSI) at all six centres in 2013 to collect and utilize patient reported outcomes (PROs) for immediate clinical care, quality improvement, and research. We sought to explore the feasibility and utility of using PRO two years after the start of POSI.

Methods and Materials: PROs were collected at time of CT simulation via tablet or radiation therapist questions, and 2-4 weeks post-RT over the phone with a registered nurse (RN). Descriptive Statistics were used to present accrual and utility of PRO data. Comparison in accrual rates between categories was performed with chi square tests. Mean differences in time that RNs spent on PRO phone calls were compared with t-tests. Multivariable logistic regression modeling identified factors associated with successful accrual.

Results: From May 2013 to July 2015, 2849 patients were approached by POSI on 5,847 occasions for patients treated with RT for bone metastases (51%), brain metastases (12%), and incurable lung cancer (7%). The accrual rate for all encounters was 76% (n = 4904), ranging from 73% to 87% depending on cancer centre (p < 0.001), and highest amount patients with bone metastases (78%), followed by lung cancer (75%) and brain metastases (65%; p < 0.001). Patients were significantly less likely to be successfully accrued at follow up compared to baseline (OR = 0.21; 95% CI = 0.18 – 0.24; p < 0.001), as were those with brain metastases (OR = 0.50; 0.41 – 0.61; p < 0.001), During the study period RNs made 2042 telephone follow up calls, totaling 250 RN hours, to both collect PRO, and subsequently use these PRO to guide follow up care. The RN-reported mean time to complete the follow up call was highest with brain metastases (13.1 minutes) compared to lung cancer (8.2 minutes) and bone metastases (6.7 minutes), which was highly significant (p < 0.001). The RN phone calls that required the RN to offer additional support were significantly longer than phone calls where no support was needed (mean 12.1 versus 6.4 minutes; p < 0.001). From this database we have demonstrated similar patient reported pain improvement with single versus multiple fraction RT (presented previously), and have used data to lead quality improvement initiatives, such as identifying patients who did not have a dexamethasone weaning protocol. Other quality improvement and research utility of the POSI database will be described.

Conclusions: Population-based collection and utilization of PRO for clinical care, quality improvement, and research is feasible and associated with only a modest increase in resources and workload. Further research is needed on how to best incorporate...
EXPERIENCE WITH AN URGENT PALLIATIVE LUNG RT CLINIC
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Purpose: To describe the case mix, intervention efficacy and prognosis of patients with advanced lung cancer attending a Fast Track Lung (FTL) clinic that was established to improve timeliness of access to palliative RT.

Methods and Materials: Pre-treatment and treatment information was prospectively collected on FTL patients seen from January 2014 to December 2015. Palliative RT use was decided based on clinical/radiologic information suggesting that one or more specific symptoms were reasonably likely to be helped. Phone follow up by a nurse 1-2 months later assessed the effect of RT on each index symptom.

Results: Two hundred and fourteen patients were assessed a total of 310 times, a mean of 1.5 times per patient (range 1-8). Eighty-six percent had non-small cell histologies (71% adenocarcinoma, 22% squamous cell carcinoma). Most were ECOG 2 (30%) or 3 (46%) at the time of first presentation. Median survival from initial FTL consult was 3.2 months (95% CI 2.2-3.6) for the entire group; for ECOG 0-1, it was 12.3 months (95% CI 7.4-16.2) and for ECOG 3-4, 1.8 months (95% CI 1.5-2.2). EGFR mutation positive patients had a median survival of 12.5 months (95% CI 4.3-39.8). 224 of the 310 clinic visits resulted in palliative RT to at least one site, of which 161 (72%) had phone follow up. Three hundred and ninety courses of RT were delivered, a mean of 1.8 per patient, (range 0-13). Forty-nine percent of RT courses were delivered to bony sites other than ribs, 22% to the chest, 14% to the chest wall/ribs and 10% to the brain. Thirty-one percent were single fractions and 92% were <5 fractions. Median dose was 20 Gy and the median number of fractions was 5. Among patients receiving RT to one or more concurrent site(s), 80% reported some benefit. Seventy-seven percent of patients receiving RT to the chest reported improvement in at least one index symptom. This varied by symptom (e.g. dysphagia 33%, cough 82%, hemoptysis 100%). Eighty percent of treated bone mets became less painful. If one assumes that every patient without follow up information had no benefit, still the majority were helped.

Conclusions: Palliative RT, generally with 5 or fewer fractions, helped most patients with clinically or radiologically targetable symptoms who attended a dedicated Fast Track Lung clinic. Phone follow up is a feasible way to obtain patient or family reported outcome information. Median survival was short, although considerably longer in patients with good performance status and/or an EGFR mutation, in whom the potential benefits of more intensified palliative RT should be investigated.

THE ALBERTA RADIATION THERAPY PROVINCIALIZATION PROJECT
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Purpose: A provincial initiative to streamline and standardize radiation therapy (RT) processes was initiated in Q1 2015 with the ultimate goal of measuring treatment and operational outcomes. Two tertiary centres using Varian’s Record and Verify systems since the 1980’s have been slow to incorporate some of the paper-light functions and features available. Two community centres (opening in 2010 and 2014) introduced more of a paper-light environment. The operational and environmental differences between facilities have resulted in disparate processes, software, and definitions in RT practice across the province.

Methods and Materials: The first challenge was to establish a provincial Steering Committee (SC) with front-line representatives from each of three disciplines and all four RT facilities. The SC is comprised of: three co-chairs (medical physicist, radiation oncologist and radiation therapist), five 0.2/0.4 FTE project coordinators (PC) (radiation therapists), 0.5 FTE project manager (PM), two 0.5 FTE process improvement specialists (PIs) (one for the North and one for the South), a Varian Clinical Consultant, Executive sponsors, and additional representatives from each discipline at each RT centre. A core group (CG) of the SC consists of three co-chairs, PM, P Cs, PIs, and Varian. Local working groups were established at each RT center with three co-chairs, who also sit on the SC to ensure...