Cancer Care Ontario

Radiation Treatment Quality Based Procedures (RT-QBP)

Gastrointestinal (GI) Cancers RT-QBP Working Group Meeting

JANUARY 24, 2019

Ontario
Cancer Care Ontario

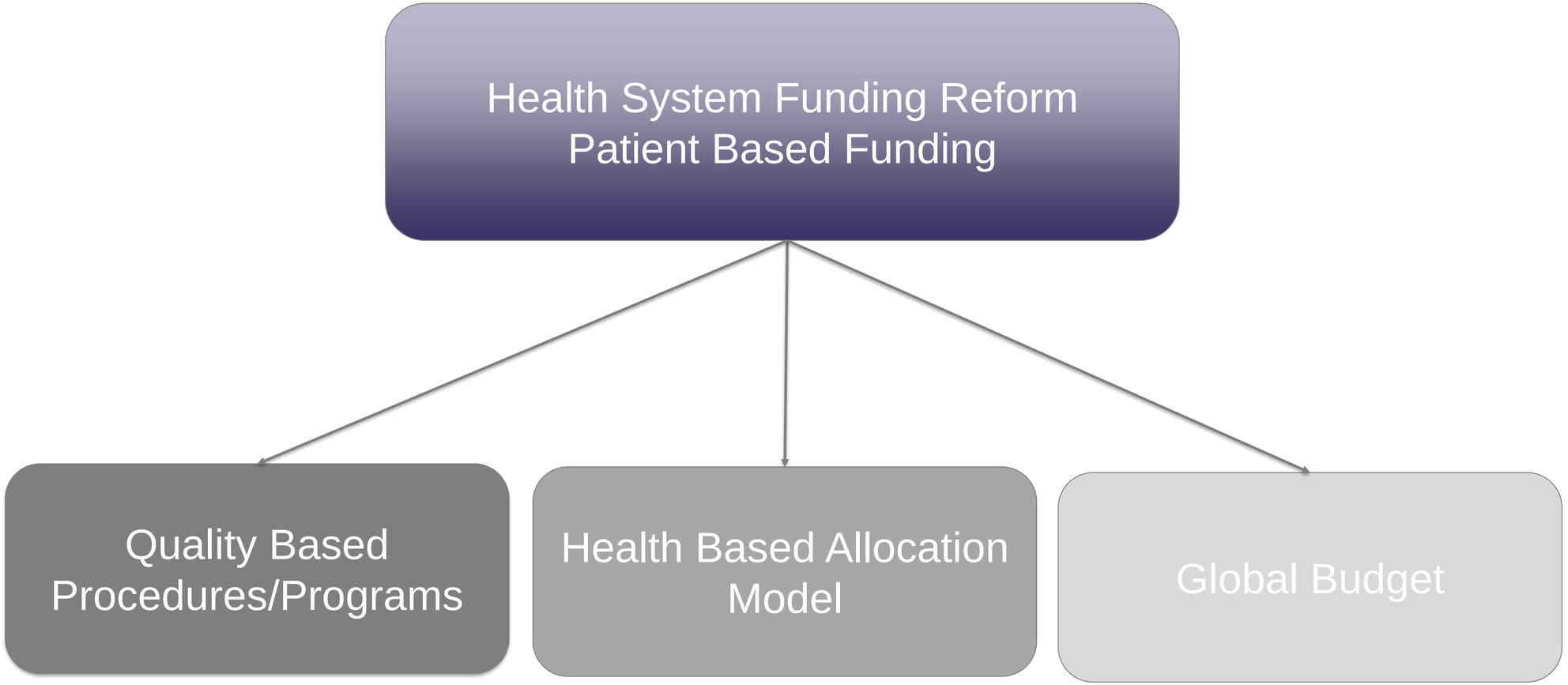
Objectives for Today

GI RT-QBP Working Group Meeting:

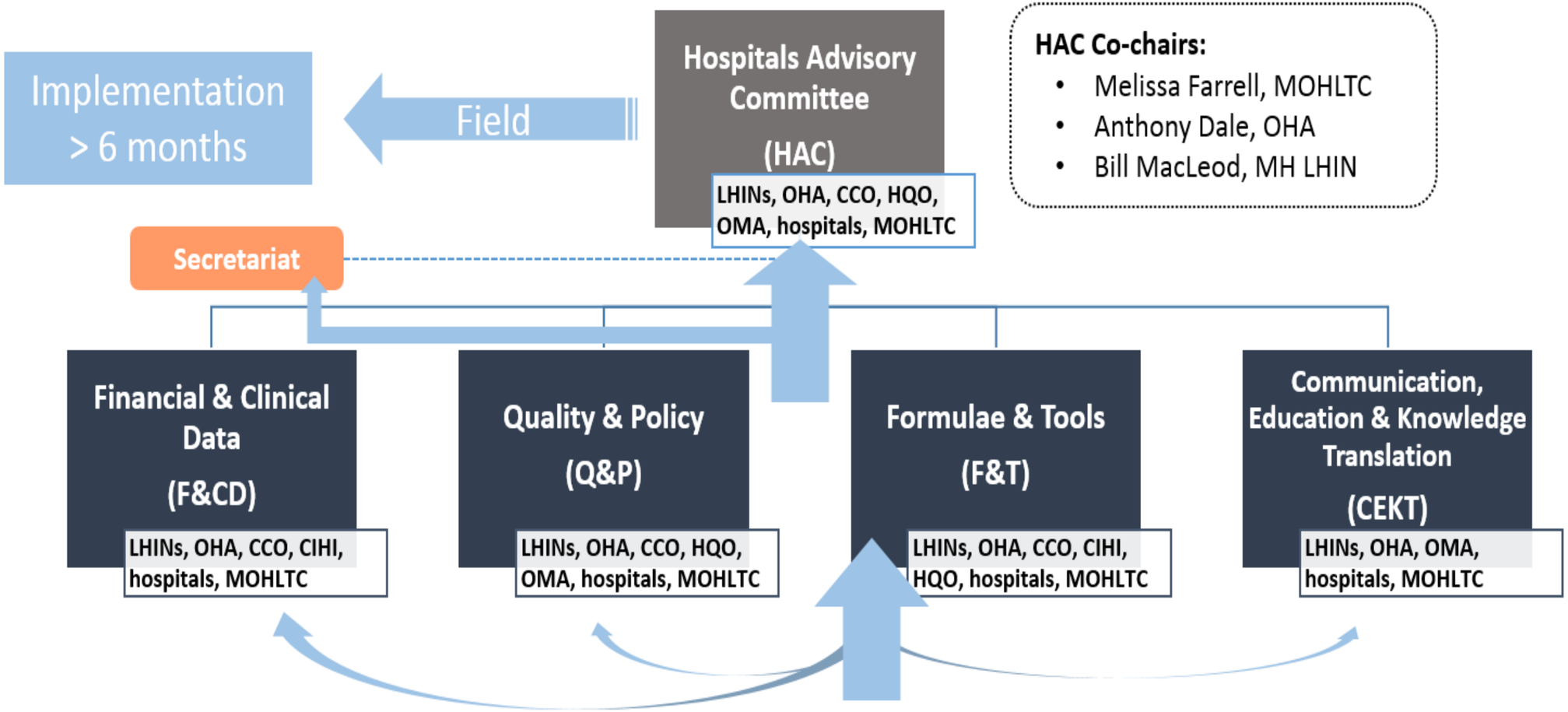
- To provide an introduction to Health System Funding Reform (HSFR)
- To review Gastrointestinal (GI) RT-QBP protocols for consideration
- To review Gastrointestinal (GI) RT-QBP quality metrics for consideration
- To review the Micro Costing and Infrastructure and Equipment funding approach
- To provide an update on Psychosocial Oncology (PSO)
- QBP Timelines and Next steps

Introduction to Health System Funding Reform (HSFR)

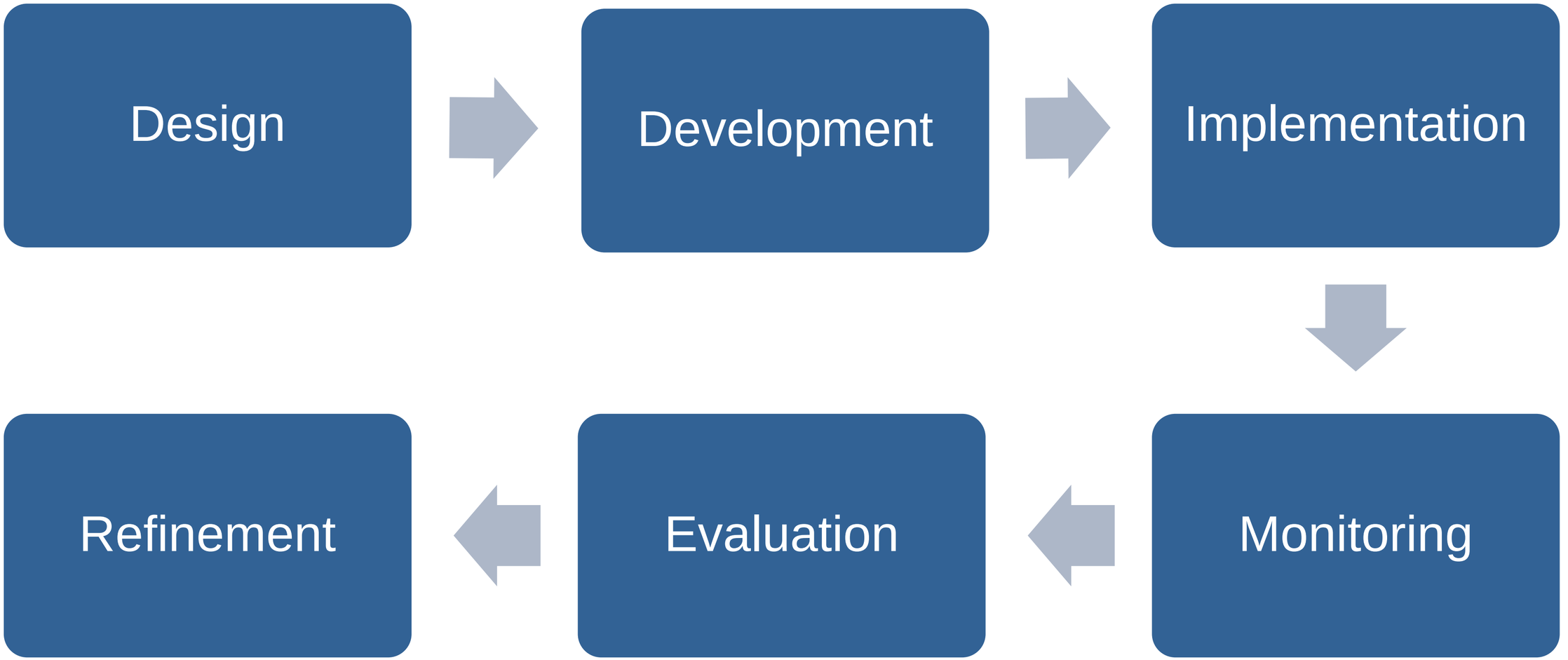
Health System Funding Reform (HSFR)



HSFR Governance- Current



Path to a QBP- Life Cycle



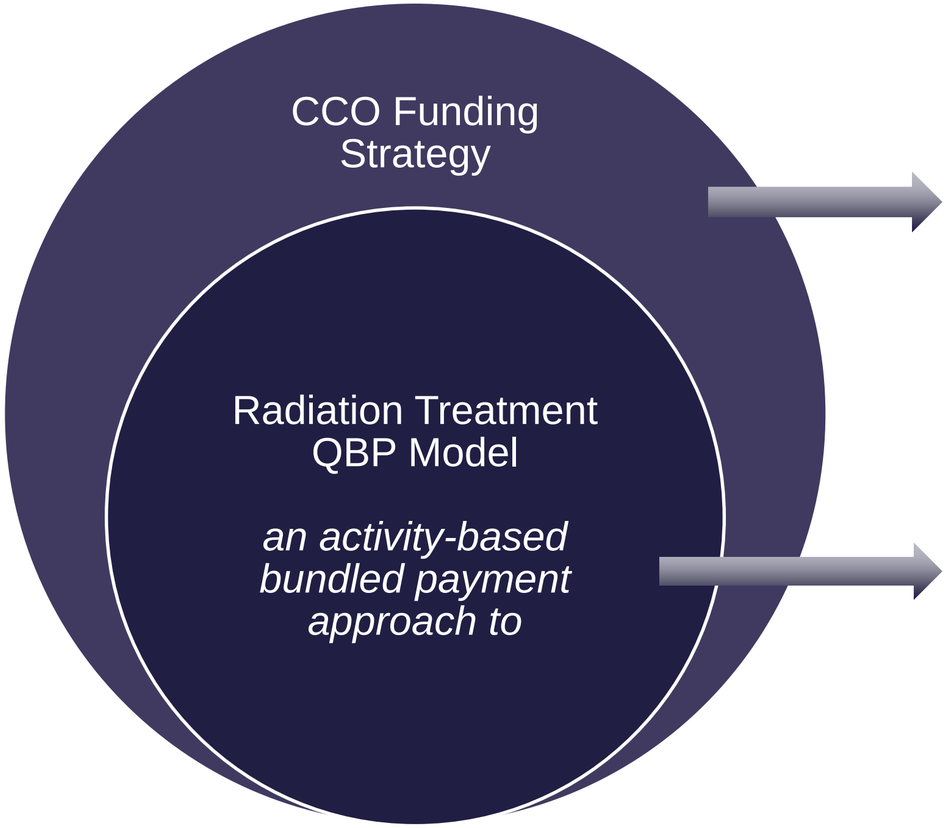
Path to a QBP- Development & Implementation Activities

Note: Scope for other QBP attached in Appendix

Radiation Treatment Overview

Radiation Treatment QBP Overview

- **Vision: Implement a new funding model that will drive consistent, equitable, and high-quality care for patients being treated with radiation**



- Cancer treatment is typically one of, or a combination of, three modalities Cancer Surgery, Systemic Treatment QBPs have been completed
- Completing the third modality, RT-QBP will:
  - Allow CCO to better coordinate the up-stream care elements, which could lead to a diagnostic-type QBP for cancer patients in the future
  - Control areas of overlap and potential duplication of funding during treatment phases (i.e. patients requiring concurrent chemo/radiation therapy)
  - Lead to more integrated approaches to post hospital care, such as a community care QBP for cancer patients

- Improve patient outcomes and experiences
- Align with best practices based on clinical evidence and expert consensus
- Improve appropriateness of care and reduce variation in care
- Facilitate efficient use of resources, increase both the transparency and accountability of resource utilization
- Increase accessibility to services including new technologies to ensure that Ontarians receive high quality and safe radiation treatment services, regardless of where they reside in the province

Scope and Outline for RT-QBP

Ontario Health System Funding Reform:

Shift to patient-based funding

Scope: Ambulatory Care Radiation Treatment

Activities related to direct patient care at all radiation treatment facilities

Goal: Implement a new episode-based funding model which:

-Ensures funding follows the patient

-Reduces inequities in funding

- Ties funding to evidence-informed practice

The following are **in scope** for now:

- All in-scope adult and pediatric volumes
- In-patient & Out-patient activities
- Benign (where appropriate)
- Costs associated with ongoing maintenance of radiation equipment and associated software/hardware
- Systemic Treatment by ROs (hormones)
- Psychosocial support
- Clinical Trials (fund as per standard of care)

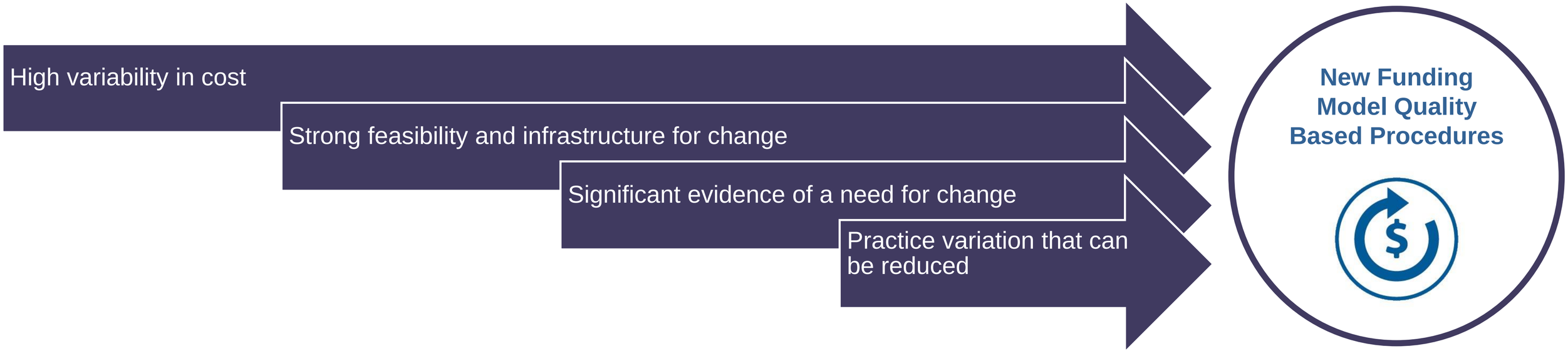
The following are **out of scope** for now:

- Physician Compensation
- Home Care
- Laboratory & diagnostic imaging
- Ontario non-OHIP activity: Any procedure that is completed for an Ontario resident who does not have a valid Ontario Health Insurance Plan (OHIP) or where funding is provided from a source other than OHIP
- Out-of-province/country activity: Any procedure that is completed for a non-Ontario resident.

Data Source: ALR (Linkage to others as required- OHIP, NACRS, DAD, etc.)

Evidence for the Radiation Treatment QBP

Radiation Treatment is well aligned with the MOHLTC's framework for developing a Quality Based Procedures (QBP) Funding Model



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Radiation Treatment Overview

Previous Lifetime Model

LIFETIME PER CASE FUNDING

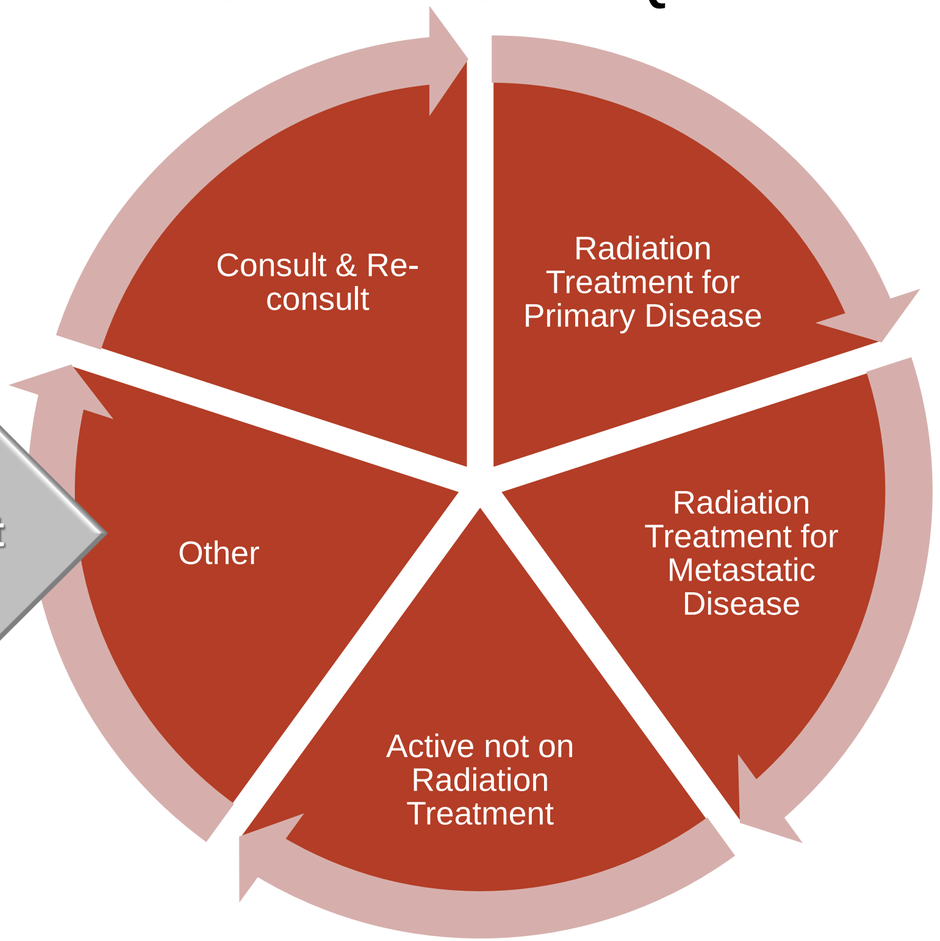
CCO funding C1R

PCOP per visit Funding

Hospital base

Carve-out

Radiation Treatment QBP



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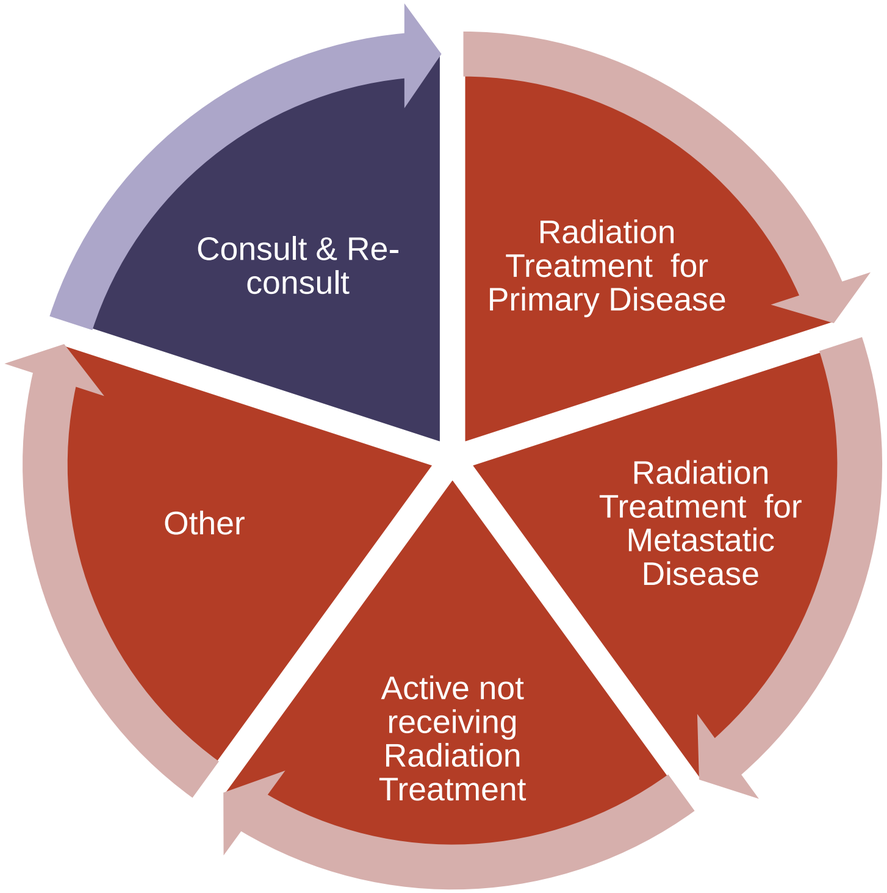
Consultations for Radiation Treatment



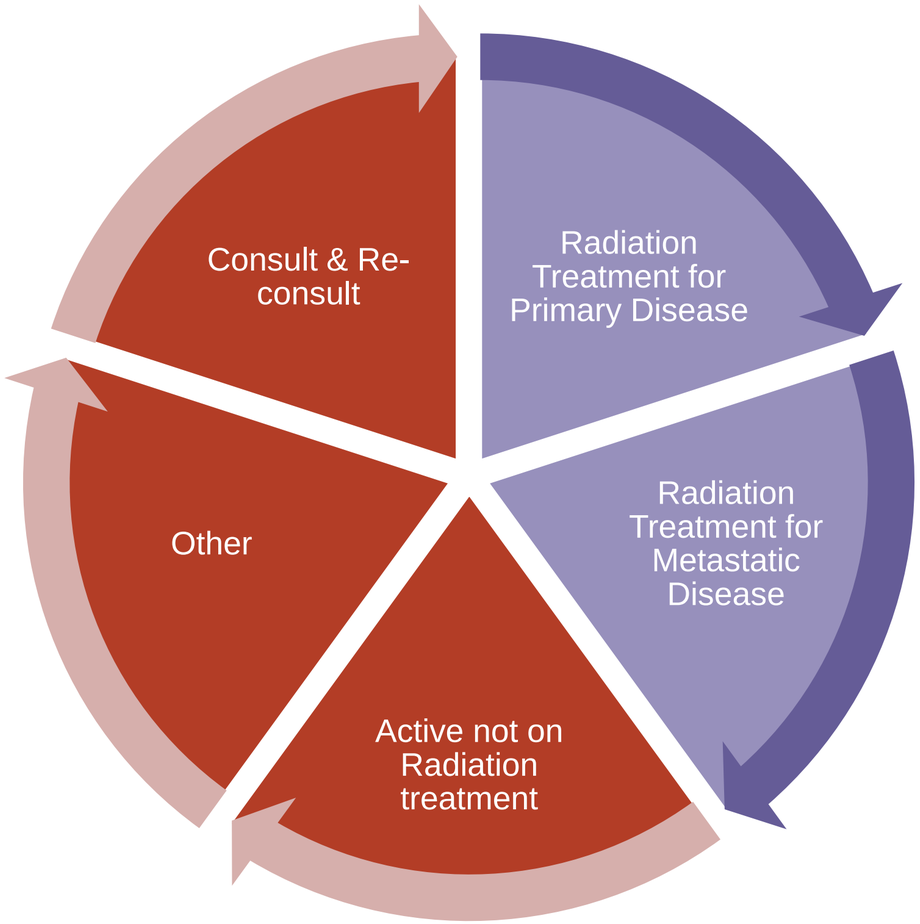
Data

Patient visits:
- Initial consultation
- Decision to treat

Activities:
- Patient education
  - Individual and group education session
- Psychosocial Supportive Care
- Support for patient decision-making

Price

Radiation Treatments for Primary and Metastatic Diseases



Data | **Evidence**

Treatment to Primary Disease & Treatment for Metastatic Disease

Includes:

- # of Radiation Treatment Visits
- # of Ambulatory Clinic Visits
- Nursing Time
- Radiation Therapist & Planner Time
- Medical Physics Time
- HDR sources
- Supplies (immobilization, contrast, etc.)
- # of Review visits during treatments (1/week)
- Follow-up visits post-treatment

Multiple Price Points

Radiation Treatment Pricing

Activity Based Costing approach based on model published by RTP and Pharmacoeconomic unit at University of Toronto

- The Activity Based Costing (ABC) approach breaks processes down into activities that consume resources to deliver each unit of output
- Cost drivers such as time or patient load are identified for each resource within each activity

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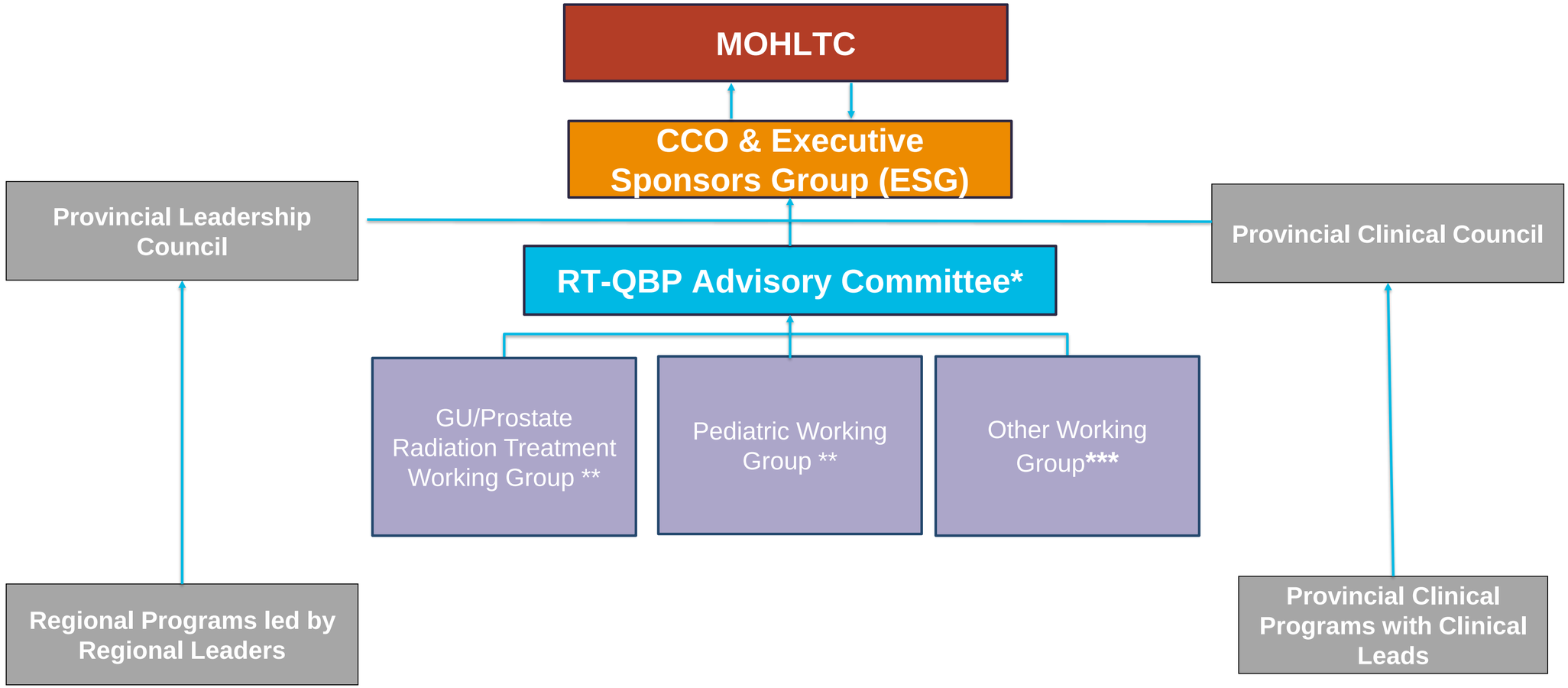
Source: Yong et al Current Oncol 23(3) e228-238, 2016

RT-QBP Governance

The RT-QBP CCO Project Team is involved all levels



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**Membership includes administrative and clinical leadership from all regions*
***Working groups will have cross member representation and will report into the Radiation Treatment Advisory Committee which will report into the Project Team Committee.*
****Additional time limited working groups will be established as the QBP evolves*

Overview of RT-QBP Committee and Group Membership

Overview of RT-QBP Committee and Group Memberships

	Advisory Committee	Disease Specific Working Group	Disease Specific Expert Panel Group
Purpose	- Provides ongoing advice and counsel to CCO on the development and implementation of the RT-QBP, with particular focus on the development of the clinical handbook	- Provides advice on clinical best practice, feedback and expertise on the selection of disease site Radiation Treatment Protocols, review quality metrics and provide input on RT resources to guide costing development	- Provide advice to the RT-QBP Clinical Lead and expertise in completing preliminary work on data analysis, quality metrics and literature scans specific to the disease site
Meeting Frequency	- In-person or teleconference every 6 weeks to 8 weeks including 1-2 in person meetings	- 1-2 full day, in-person or teleconference meetings - Members may be asked to review information via email and provide their feedback	- 2-3 teleconference meetings - Members may be asked to review information via email and provide their feedback
Membership Process	- Selected based on a nomination from each region's RVP or RCC Director	- Selected based on a nomination from each region's RVP or RCC Director	- Selected by the RT-QBP Clinical Lead - RVPs and RCC Directors will be informed of Expert Panel members via email
Reporting Structure	- Reports to CCO and the Executive Sponsors Group via the RT-QBP Project Team	- Reports to the Advisory Committee via the RT-QBP Project Team	- Reports to the RT-QBP Clinical Lead

- GI RT-QBP Expert Panel Members:
  - Jim Brierley - Lead
  - Sten Myrehaug
  - Anand Swaminath
  - Jon Tsao
  - Conrad Falkson
  - Kristopher Dennis
  - Patricia Lindsay
  - Jean-Pierre Bissonnette
  - Margaret Hart

GI Working Group Membership

GI RT-QBP Working Group Members:

Name	Hospital
Stacey Fakir	London Health Sciences Centre
Bryan Schaly	London Health Sciences Centre
Darin Gopaul	Grand River Hospital
Darlene Croswell	Grand River Hospital
Raimond Wong	Jurvaniski Cancer Centre
Ranjan Sur	Jurvaniski Cancer Centre
Theo Mutanga	Trillium Health Partners
James Varghese	Trillium Health Partners

Name	Hospital
Vahab Atefy	Sunnybrook Health Sciences Centre
Shun Wong	Sunnybrook Health Sciences Centre
John Kim	Princess Margaret Hospital
Patricia Lindsay	Princess Margaret Hospital
Ahmar Abbas	Southlake Regional Health Centre
Zahra Kassam	Southlake Regional Health Centre
Christine Black	Lakeridge Health
Joel Broomfield	Lakeridge Health
Maria Kalyvas	Kingston Health Sciences Centre
Kit Tam	Kingston Health Sciences Centre

Name	Hospital
Kristopher Dennis	The Ottawa Hospital
Katie Lekx-Toniolo	The Ottawa Hospital
Jenna King	Royal Victoria Regional Health Centre
Adam Michalak	Royal Victoria Regional Health Centre
Gilles Dugas	Health Sciences North
Laurie Stillwaugh	Health Sciences North
Kevin Ramchandar	Thunder Bay Regional Health Sciences Centre
Patrick Rapley	Thunder Bay Regional Health Sciences Centre

Evidence-based sources for RT protocols

Evidence-based sources for RT protocols

- Existing literature
- NCCN guidelines
- ASTRO guidelines
- Radiotherapy dose fractionation 2nd ed. UK
- Provincial and RCC-specific data
- iPort
- Clinical expertise from GI Expert Panel

NCCN National Comprehensive Cancer Network®

NCCN Guidelines Version 2.2018
Esophageal and Esophagogastric Junction Cancers

NCCN Guidelines Index
Table of Contents
Discussion

PRINCIPLES OF RADIATION THERAPY

Normal Tissue Tolerance Dose-Limits
- Treatment planning is essential to reduce unnecessary dose to organs at risk, including liver.
- Lung dose may require particular attention, especially in the preoperatively treated patient. Normal lung (more than 2 cm outside the target volume) should not receive more than 40 Gy. It is recognized that these dose guidelines may be appropriately exceeded based on clinical circumstances.

Lung[b]
- $V_{40Gy} \leq 10\%$
- $V_{30Gy} \leq 15\%$
- $V_{20Gy} \leq 20\%$
- $V_{10Gy} \leq 40\%$
- $V_{05Gy} \leq 50\%$
- Mean < 20 Gy

Cord
- Max ≤ 45 Gy

Bowel
- Max bowel dose < Max PTV dose
- $D_{05} \leq 45$ Gy

Heart
- $V_{30Gy} \leq 30\%$ (closer to 20% preferred)
- Mean < 30 Gy

Left Kidney, Right Kidney (evaluate each one separately):
- No more than 33% of the volume can receive 18 Gy
- Mean dose < 18 Gy

Liver
- $V_{30Gy} \leq 30\%$
- $V_{30Gy} \leq 20\%$
- Mean < 25 Gy

Stomach
- Mean < 30 Gy (if not within PTV)
- Max dose < 54 Gy

[b]Lung dose-volume histogram (DVH) parameters as predictors of pulmonary complications in esophageal cancer patients treated with concurrent chemoradiotherapy should be strongly considered, though consensus on optimal criteria has not yet emerged. Every effort should be made to keep the lung volume and doses to a minimum. Treating physicians should be aware that the DVH reduction algorithm is hardly the only risk factor for pulmonary complications. Important considerations may also include plans for post-treatment surgery, pretreatment pulmonary function, and relevant comorbidities. DVH parameters as predictors of pulmonary complications in esophageal cancer patients are an area of active development among the NCCN Member Institutions and others.

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

Continued

ESOPH-G

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Quality indicators in breast

Radiation therapy quality indicators for invasive brea

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Radiation therapy
Delphi technique

ABSTRACT

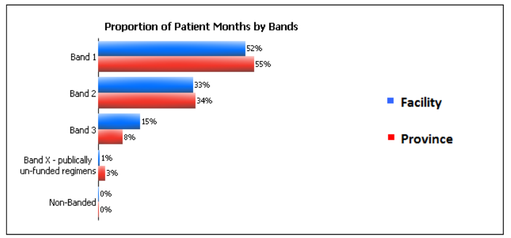
Background and purpose: Radiation therapy (RT) fo
two decades. A concise list of optimal care indexes
a suite of quality of care indicators for breast can
Materials and methods: A modified Delphi approa
guideline review (1995–2015), an initial review o
mittee, a survey of Canadian Radiation Oncologist
with breast cancer experts to develop a list of bre
Results: The literature review identified 163 poten
mittee. After all rounds of the Delphi process the fi
least 80% acceptance from the Radiation Oncologi
Conclusions: A suite of measureable RT quality ind
sive breast cancer was developed. These indicators
breast cancer RT practices.

STP004 - I

Provides a breakdown of parenteral palliative treatment volumes by band and palliative supportive care, off treatment volumes.

Period: {Fiscal Year}=FY 2015/16 | Data Current To: Jul 2016

Region: Region 1 | Facility: Facility ABC



		Patient Months	Price	Funding
Banded Regimens	Band 1		$460.27	
	Band 2		$787.27	
	Band 3		$940.65	
	Total	2587		$1,656,271.27

ent Programs

anadian Association of Radiation Oncology

anadian Organization of Medical Physicists

n Association of Medical Radiation Technologists

Canadian Partnership Against Cancer

December 31, 2015

Cancer Care Ontario

Gastrointestinal Cancers

Proposed Treatment Protocols

Draft Esophagus Treatment Protocols

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)	Comment
Esophagus - External Beam					
Esophagus, Preoperative/ Postoperative +/- Chemotherapy, +/- Postoperative Boost, IMRT VMAT, 3D Conformal	GI_ESO_1P_PREOP_POSTOP	40 – 50.4 +/- 10 post op	20 – 28 +/- 5	1.8 – 2.0	
Esophagus, High Dose Treatment +/- Chemotherapy, +/- Boost (no surgery) IMRT, VMAT 3D Conformal	GI_ESO_2P_HIGHDOSE	46 – 50.4 +/- 10 external beam boost	20 – 30	1.8 – 2.5	
Esophagus, High Dose Treatment +/- Chemotherapy, + Brachy Boost (no surgery), IMRT, VMAT, 3D Conformal	GI_ESO_2P_HIGH DOSE_BRACHY	46 – 60 +/- 6-10 brachy HDR boost	23 – 30 +/- 1-3	1.8– 2.5 + 6.0 - 10	
Esophagus, HDR Brachytherapy	GI_ESO_1P_HDR_BRACHY	12 - 25	2 – 4	5 - 8	Range broadened to accommodate two proposed brachy protocols provided by R. Sur

Draft Pancreas Treatment Protocols

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)
Pancreas - External Beam				
Pancreas, Locally Advanced, Resectable/Borderline Resectable (Neoadjuvant/Adjuvant) +/- Concurrent Chemotherapy, IMRT, VMAT, 3D Conformal	GI_PANC_1P_RES_LOCALADV	45 – 54	25 – 30	1.8 – 2.0
Pancreas, High Dose Treatment SBRT	GI_PANC_1P_~~RAD_~~SBRT	25 – 50 45 - 70	3- 5 15	5 – 10

Draft Liver Treatment Protocols

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)	Comment
Liver- External Beam					
Liver, Hepatocellular Carcinoma, High Dose Treatment, SBRT	GI_LIVER_1P_HEPATCARC_HIGHDOSE	25 – 60	3 - 6	5.0 – 10.0	Moved to Quality Metrics Section
Liver, Extensive Metastases, IMRT, VMAT, 3D Conformal	GI_LIVER_1P_EXTMETS_IMRT_VMAT	8 – 30	1 - 10	3 – 8	Note to funding: Could be 20 Gy in 5 fractions or 24 Gy in 8 fractions
Liver, Oligo Metastases, SBRT	GI_LIVER_1P_OLIG_SBRT	25 – 60	3 – 6	5.0 – 10.0	

Draft Rectum and Rectosigmoid Junction Treatment Protocols

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)	Comment
Rectum and Rectosigmoid Junction- External Beam					
Rectum, Rectosigmoid Junction, Preoperative/Postoperative Long Course (1 phase) +/- Chemotherapy, IMRT, VMAT, 3D Conformal	GI_RECT_1P_PREOP_POSTOP	45 – 55.8	25 – 31	1.8 – 2.0	
Rectum, Rectosigmoid Junction, Preoperative/Postoperative Long Course (2 Phase) +/- Chemotherapy IMRT, VMAT, 3D Conformal	GI_RECT_2P_PREOP_POSTOP	40 – 50 plus 5.4 – 10 boost	20 – 25 + 3 – 5	1.8 – 2.0 + 1.8 – 5 boost	Note for funding unit: it is estimated that approximately 90% of cases are 1 phase
Rectum, Rectosigmoid Junction Preoperative Short Course / Hypofractionation (No Chemotherapy) , IMRT, VMAT, 3D Conformal	GI_RECT_1P_PREOP_HYPO	25	5	5	
Rectum, Rectosigmoid Junction, High Dose Treatment(inoperable) (1-2 phases) +/- Chemotherapy , IMRT, VMAT, 3D Conformal	GI_RECT_1-2P_HIGHDOSE	50 – 66	10 – 33	1.8 – 4.0	
Rectum, Rectosigmoid Junction, Brachytherapy	GI_RECT_1P_BRACHY	5 – 15	1 -3	5.0 – 7.0	

Draft Anus, Anal Canal Treatment Protocols

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)	Comment
Anus and Anal Canal- External Beam					
Anal Canal, High Dose Treatment, Standard Planned 1-3 Phase +/- Chemoradiation, IMRT, VMAT	GI_ANAL_1-3P_HIGH DOSE_EBRT	40 - 63	10 – 35	1.8 -4.0	Note for Funding Unit: Expert Panel recommends costing at 2 phases Can confirm with case level data

Draft Stomach Treatment Protocols

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)
Stomach External Beam				
Stomach, Gastric Adjuvant Preoperative/Postoperative, +/- Chemotherapy, IMRT, VMAT, 3D Conformal	GI_STOMACH_1P_PREOP_POSTOP_EBRT	45 – 50.4	20 - 28	1.8 - 2.0

Draft Short Course Treatment to Primary GI Tumour Treatment Protocols

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)	Comment
Short Course Treatment to Primary GI Tumour Treatment Protocols					
Short Course GI, External Beam, +/- Chemotherapy	GI_SHORTCOURSE_1P_EBRT	6 – 50	1 – 25	1.8 - 8	
GI, External Beam, SBRT	GI_HYPO_2P_SBRT	5 – 60	1 - 6	5 – 10	
GI, Brachytherapy (HDR)	GI_HYPO_1P_BRACHY_EBRT	10 – 18	1 – 3	6 – 10	HDR brachytherapy can be used in addition to protocol #1

Draft GI Unspecified Treatment Protocols

GI Unspecified Sub Disease Sites:

- Colon
- In Situ Digestive Organs
- In Situ Unspecified Organs & Spleen
    - Other Digestive Organs
        - Gastrointestinal Tract Not Otherwise Specified
- Other Unspecified Biliary Tract
- Retroperitoneum & Peritoneum
- Small Intestine & Duodenum
- Intrahepatic Bile Duct
- Gallbladder

Recommendation

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)
GI Unspecified, + / - Chemotherapy	GI_UNSPEC_1P_EBRT	20 - 60	5 - 30	1.8 – 12
GI Unspecified Brachytherapy	GI_UNSPEC_1P_BRACHY	5 – 15	1 – 3	5 - 7

GI Retreatment Protocols

RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)
GI Retreatment, +/- Chemotherapy	GI_RETREAT_1P	20 - 60	5 - 30	1.7 – 2.6
GI Retreatment bid	GI_RETREAT_1P_BID	40 - 55	20 - 50	1.0 -1.1

Cervical Esophagus – Collaboration with H&N / GI Groups

Treatment Context	RT Protocol Long Form	RT Protocol Short Form	Proposed Range (Gy)	Total Fractions	Dose per Fraction (Gy)
Cervical Esophagus	RT definitive curative (EBRT)+Chemotherapy + EBRT Boost	GI_CESO_2P_EBRT+BOOST	50 – 60 Gy + 6 – 10 Gy	25 – 30 + 3 - 5	1.8 – 2.0
	RT definitive curative + Chemotherapy + HDR brachy boost	GI_CESO_2P_EBRT+HDR	50 – 60 Gy + 5 - 18 Gy HDR brachy	25 – 30 + 1 - 2	1.8 – 2.0 Gy + 5 – 6 Gy HDR

Quality Metrics (QM) Development

Quality Metrics Development

01 Infrastructure

02 Pre-Treatment Phase

03 Imaging and Planning Phase.

04 Quality Assurance Phase

05 Treatment Phase

06 Post-Treatment Phase.

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Quality Metrics

Examples of Quality Metrics that will apply across all disease sites:

- Peer Review QA
- Physics and Therapy QA
- Etc…

Examples of quality metrics that may be disease site specific:

- VMAT – may require patient specific measurements
- Brachytherapy may have specific quality metrics
- On Treatment imaging – may be disease specific – Daily for some but maybe not others

Quality Metrics – All GI Sub Disease Sites

Institutional Expectations – All GI Sub Disease Sites

Institutional Policies should be developed for both external beam and brachytherapy outlining:

1. Pre-treatment assessment and documentation
2. CT simulation protocols and/or MRI Simulation, where indicated
3. Quality Assurance (QA)
4. Treatment protocols to include frequency of imaging and image matching strategies
5. Post-treatment follow-up

Draft Quality Metrics for GI – Applicable to Multiple Sub Disease-Site Groups

	Upper Esophagus	Pancreas	Liver	Rectum, Rectosigmoid Junction,	Anus, Anal Canal	Stomach / Lower Esophagus	GI Unspecified
Pre-Treatment							
<u>Documentation:</u> ➢Documentation of current disease, medical co-morbidities ➢Documentation of medical history, physical exam ➢Pathology (as appropriate) ➢Metastatic Work-up as per Institutional protocols ➢Obtaining informed consent	✓	✓	✓	✓	✓	✓	✓
<u>Documentation:</u> ➢ PET scan recommended	✓				✓	✓ (Esophagus)	
Imaging and Planning							
<u>Imaging:</u> ➢ Planning CT scan required when treating radical/adjuvant intent patients	✓	✓	✓	✓	✓	✓	✓
➢ 4DCT and/or Organ Motion Management required when treating high dose patients	✓ (optional)	✓	✓			✓	
➢ Institutional policy for identifying stomach or upper small bowel or small bowel volume		✓	✓	✓	✓	✓	
➢Dose constraints Institutional policies specific to: ➢Imaging and planning dose/volume constraints should be documented and DVHs obtained specific to each dose/fractionation protocol used ➢SBRT dose volume constraints should be specified ➢Dose/volume criteria specific to primary tumour ➢ Disease site specific examples slides: 41, 45, 50, 54, 58	✓	✓	✓	✓	✓	✓	

Draft Quality Metrics for GI – Applicable to Multiple Sub Disease-Site Groups

	Upper Esophagus	Pancreas	Liver	Rectum, Rectosigmoid Junction,	Anus, Anal Canal	Stomach / Lower Esophagus	GI Unspecified
Quality Assurance							
Peer Review: ➢As per CCO Radiation Oncology Peer Review Guidance Document ➢https://www.cancercareontario.ca/sites/ccocancercare/files/assets/CCORadiationOncologyPeerReview.pdf?redirect=true	✓	✓	✓	✓	✓	✓	✓
QA of treatment plans: ➢QA of all treatment plans shall be performed by a medical physicist and radiation therapist, as per institutional guidelines	✓	✓	✓	✓	✓	✓	✓
Patient-specific QA (e.g. individual patient dosimetry for VMAT): ➢As per CPQR guidelines. Mandatory for ultra-fractionated approaches.	✓	✓	✓	✓	✓	✓	✓
Treatment							
Institutions should have a clearly defined policy for cardiac rhythm devices or cardiovascular implantable electronic device (CIED)	✓	✓	✓	✓	✓	✓	✓
Image guidance: ➢Daily Image guidance using CBCT is required for high dose treatment patients	✓	✓	✓	✓	✓	✓	✓
➢Daily image guidance is required. Either fiducial markers or CBCT are essential when using a radical or SBRT approach		✓	✓				
Follow-Up							
➢ Ensure patient is followed up by members of the multi-disciplinary team	✓	✓	✓	✓	✓	✓	✓

Quality Metrics –GI Sub Disease Site Specific

Draft Quality Metrics for GI – Esophagus

Pre-treatment

Documentation:

- Metastatic Work-up as per Institutional protocols including PET scan
- Dietary assessment and nutritional support
- Endoscopic ultrasound when required

Draft Quality Metrics for GI - Esophagus

Imaging and planning

Imaging for Treatment Planning

- 4DCT and/or Organ Motion Management required when treating lower esophageal lesions with radical intent and optional per institutional policy for other esophageal sites

Draft Quality Metrics for GI - Esophagus

Imaging and planning

Dose Constraints: Institutional policies should be defined – example below

Example: EBRT Dose Volume Constraints from the NCCN

Volume of interest	Criteria
Lung	• V 40Gy ≤ 10% • V 30Gy ≤ 15% • V 20 Gy ≤ 20% • V 10 Gy ≤ 40% • V 05 Gy ≤ 50% • Mean < 20 Gy
Cord	• Max ≤ 45 Gy
Small Bowel	• Max bowel dose < Max PTV dose • D05 ≤ 45 Gy
Large Bowel	• Max bowel dose < Max PTV dose • D05 ≤ 45 Gy
Heart	• V 30Gy ≤ 30% (closer to 20% preferred) Mean < 30 Gy
Left Kidney, Right Kidney	• Evaluate each separately • No more than 33% of the volume can receive 18 Gy • Mean dose <18 Gy
Liver	V 20Gy ≤ 30% V 30 Gy ≤ 20% Mean < 25 Gy
Stomach, duodenum, jejunum	Max dose ≤ 55 Gy; not more than 30% of the volume can be between 45 and 55 Gy Mean < 30 Gy (if not within PTV) Max dose < 54 Gy

Source: NCCN Guidelines, 2018

Draft Quality Metrics for GI - Esophagus

Treatment

Image guidance:

- Daily Image guidance using CBCT is required for IMRT or VMAT

Quality Metrics – Pancreas

Draft Quality Metrics for GI - Pancreas

Imaging and planning

Imaging for Treatment Planning

- Fiducial markers or appropriate surrogate recommended for SBRT
- MRI should be considered

Draft Quality Metrics for GI - Pancreas

Imaging and planning

Dose Constraints: Institutional policies should be defined – example below

Example: EBRT Dose Volume Constraints from the NCCN

Volume of interest	Criteria
Lung	• V 40Gy ≤ 10% • V 30Gy ≤ 15% • V 20 Gy ≤ 20% • V 10 Gy ≤ 40% • V 05 Gy ≤ 50% • Mean < 20 Gy
Cord	• Max ≤ 45 Gy
Small Bowel	• Max bowel dose < Max PTV dose • D05 ≤ 45 Gy
Large Bowel	• Max bowel dose < Max PTV dose • D05 ≤ 45 Gy
Heart	• V 30Gy ≤ 30% (closer to 20% preferred) Mean < 30 Gy
Left Kidney, Right Kidney	• Evaluate each separately • No more than 33% of the volume can receive 18 Gy • Mean dose <18 Gy

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Liver	V 20Gy ≤ 30% V 30 Gy ≤ 20% Mean < 25 Gy
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Source: NCCN Guidelines, 2018

Quality Metrics – Liver

Draft Quality Metrics for GI - Liver

Imaging and planning

Imaging for Treatment Planning

- Planning CT scan (with contrast and/or MRI when possible) required
- Note for Funding Unit: Cost associated with snorkel (disposable) required for ABC

Quality Metrics – Rectum, Rectosigmoid Junction

Draft Quality Metrics for GI Rectum, Rectosigmoid Junction

Pre-treatment

Documentation:

- All patients with rectal cancers require:
  - Pre-treatment MRI unless contraindicated
  - Sigmoidoscopy and/or colonoscopy

Draft Quality Metrics for GI Rectum, Rectosigmoid Junction

Imaging and planning

Dose Constraints: Institutional policies should be defined – example below

Example: EBRT Dose Volume Constraints from the NCCN

Volume of interest	Criteria
Lung	• V 40Gy ≤ 10% • V 30Gy ≤ 15% • V 20 Gy ≤ 20% • V 10 Gy ≤ 40% • V 05 Gy ≤ 50% • Mean < 20 Gy
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Source: NCCN Guidelines, 2018

Draft Quality Metrics for GI Rectum, Rectosigmoid Junction

Follow-up (suggested)

- CCO Disease Pathway Management – Colorectal Follow Up Care Pathway Map
  - https://archive.cancercare.on.ca/common/pages/UserFile.aspx?fileId=353576

Quality Metrics – Anus, Anal Canal

Draft Quality Metrics for GI Anus, Anal Canal

Pre-treatment

Documentation:

- Documentation of medical history (including HIV status), physical exam

Draft Quality Metrics for GI Anus, Anal Canal

Dose Constraints: Institutional policies should be defined – example below

Example: EBRT Dose Volume Constraints from the NCCN

Volume of interest	Criteria
Lung	• V 40Gy ≤ 10% • V 30Gy ≤ 15% • V 20 Gy ≤ 20% • V 10 Gy ≤ 40% • V 05 Gy ≤ 50% • Mean < 20 Gy
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Source: NCCN Guidelines, 2018

Draft Quality Metrics for GI Anus, Anal Canal

Treatment

Technique

- IMRT/VMAT is required

Draft Quality Metrics for GI Anus, Anal Canal

Follow-up (suggested)

- Patient should be followed by a radiation oncologist and other members of the multi-disciplinary team as appropriate

Example: Princess Margaret Cancer Centre - Follow Up for Anus, Anal Canal

- Following resolution of acute reaction patients will be seen every 3 months for 2- 3 years, 6 monthly until 5 years, then annually from 5 to 10 years
- Post treatment imaging at 3-6 months post-treatment with CT thorax/abdomen/pelvis and MRI pelvis
- Subsequent MRI at the discretion of the physician
- Follow-up CT chest/abdo/pelvis post-treatment every 6-12 months for 2 years if clinically indicated (eg. pelvic adenopathy), then at discretion of the physician (may omit in perianal disease)

Quality Metrics – Stomach

Draft Quality Metrics for GI Stomach

Imaging and planning

Dose Constraints: Institutional policies should be defined – example below

Example: EBRT Dose Volume Constraints from the NCCN

Volume of interest	Criteria
Lung	• V 40Gy ≤ 10% • V 30Gy ≤ 15% • V 20 Gy ≤ 20% • V 10 Gy ≤ 40% • V 05 Gy ≤ 50% • Mean < 20 Gy
Cord	• Max ≤ 45 Gy
Small Bowel	• Max bowel dose < Max PTV dose • D05 ≤ 45 Gy
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Source: NCCN Guidelines, 2018

Quality Metrics – GI Unspecified

- Colon
- In Situ Digestive Organs
- In Situ Unspecified Organs & Spleen
- Other Unspecified Bilary Tract
- Retroperitoneum & Peritoneum
- Small Intestine & Duodenum
- Intrahepatic Bile Duct
- Gallbladder

Draft Quality Metrics for GI Unspecified

Follow-up (suggested)

- CCO Disease Pathway Management for Colon Cancer:
  - https://archive.cancercare.on.ca/common/pages/UserFile.aspx?fileId=353576

Micro Costing Activities

Funding Activities

Disease Site Specific Protocol Confirmation

- Disease Site Expert Panel Group and Disease Site Working Group will develop and confirm all disease site protocols for the RT-QBP

HR Resource Data Collection

- The Funding Unit will work with the following groups to complete preliminary work on HR related costing inputs for disease-site specific radiation treatment protocols:
  - Physics Professional Advisory Committee (PPAC)
  - Radiation Therapy Professional Advisory Committee (RThPAC)
  - RCC Director
- The preliminary work will be reviewed with the Disease Site specific Working Group and Advisory Committee for feedback and approval

Infrastructure and Equipment Use

- The Funding Unit will work with members of the Infrastructure and Equipment Working Group to complete preliminary work on costing inputs and data collection for infrastructure and equipment use for radiation treatment (e.g. minor equipment, patient specific supplies, etc.)
- The preliminary work will be reviewed with Disease Site specific Working Group and Advisory Committee for feedback and approval

Micro Costing Working Group

Name	Hospital
Cory Gosnell	London Health Sciences Centre
Miller MacPherson	The Ottawa Hospital
Julie Renaud	The Ottawa Hospital
Ernest Osei	Grand River Hospital
Sara Kaune	Grand River Hospital
Sara Zammit	Hamilton Health Sciences Centre
Jackson Chan	Hamilton Health Sciences Centre
Gaylene Medlam	Trillium Health Partners
Raxa Sankreacha	Trillium Health Partners
Steve Russel	Sunnybrook Health Sciences Centre
Stephen Breen	Sunnybrook Health Sciences Centre
Janice Stewart	Sunnybrook Health Sciences Centre

Name	Hospital
David Jaffray	Princess Margaret Hospital
Daniel Letourneau	Princess Margaret Hospital
Colleen Dickie	Princess Margaret Hospital
Elen Moyo	Princess Margaret Hospital
Ivan Yeung	Southlake Regional Health Centre
Catherine Cotton	Southlake Regional Health Centre
James Loudon	Southlake Regional Health Centre
Patti Marchand	Lakeridge Health
Christine Black	Lakeridge Health
Margaret Hart	Lakeridge Health
Kit Tam	Kingston Health Sciences Centre
John L. Schreiner	Kingston Health Sciences Centre

Name	Hospital
Chris Kwong	Royal Victoria Regional Health Centre
Brendee Pidgeon	Royal Victoria Regional Heath Centre
David McConnell	Thunder Bay Regional Health Sciences Centre
Andrea Dorcherty	Thunder Bay Regional Health Sciences Centre
Laurie Stillwaugh	Health Sciences North

Infrastructure & Equipment Working Group Members

Name	Hospital
Sophie Foxcroft	CCO
Eric Gutierrez	CCO
Julia Monakova	CCO
Konrad Leszczynski	Health Sciences North
Miller MacPherson	The Ottawa Hospital
Kyle Malkoske	Royal Victoria Hospital
David McConnell	Thunder Bay Regional Health Sciences Centre
Katharina Sixel	Lakeridge Health
Janice Stewart	Sunnybrook Health Sciences Centre
Julie Renaud	The Ottawa Hospital
Ivan Yeung	Southlake Regional Health Centre

Funding Activities Update

Infrastructure & Equipment

- The Infrastructure and Equipment Working Group have been engaged
- Currently working on defining the inclusion/exclusion criteria for equipment costing
- Work on the Infrastructure and Equipment template has commenced

Micro Costing

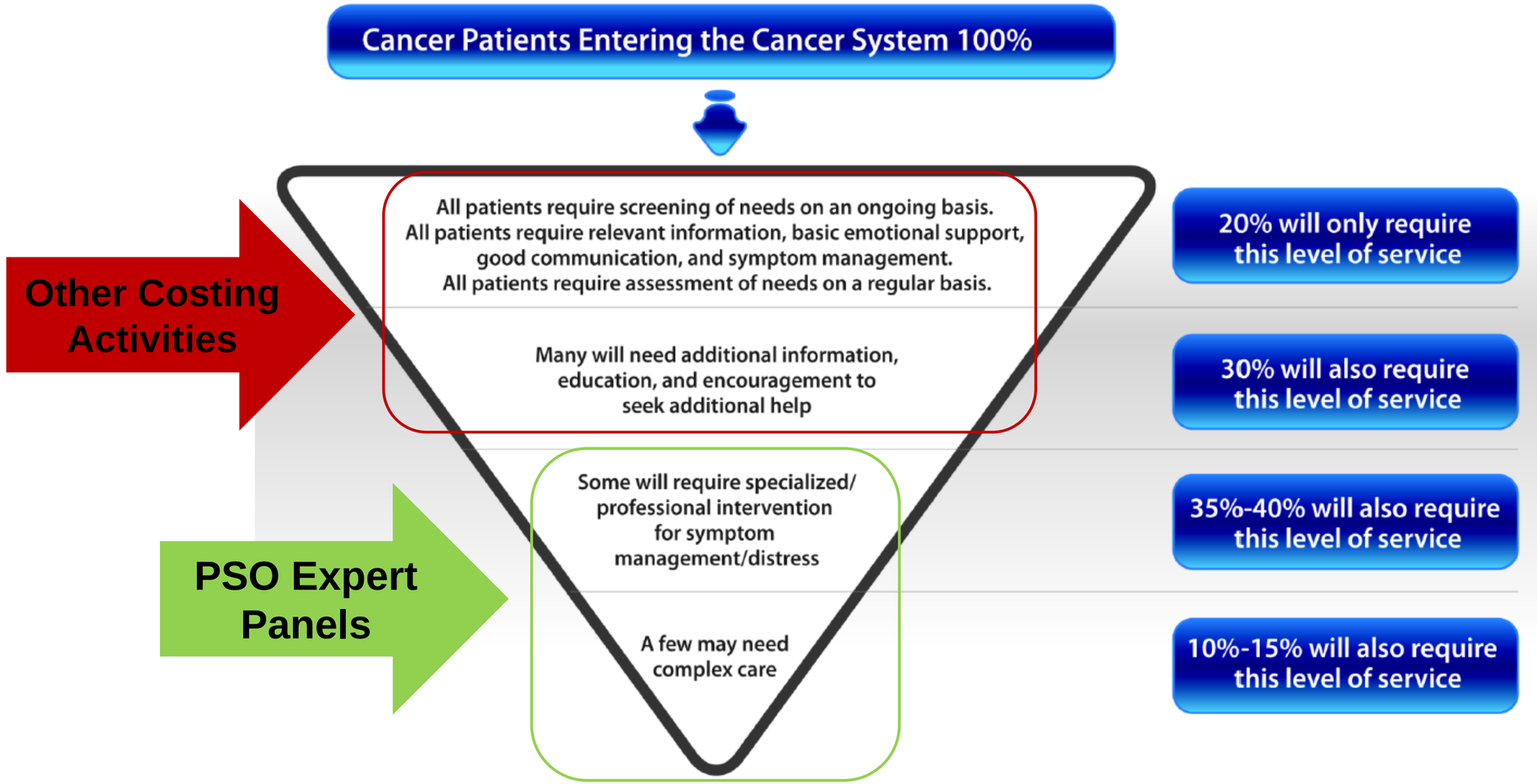
- The Micro Costing Working Group kicked off with teleconferences on January 21 & January 23
- The Working Group received a walk through of the GU RT-QBP Micro Costing Template
- The Micro Costing Working Group will be receiving the template and will be working on collecting inputs for submission to the Funding Unit
- The inputs will be analysed and follow up will take place in the coming weeks

Psychosocial Oncology (PSO)

Scope of PSO Expert Panels

Scope for PSO work:

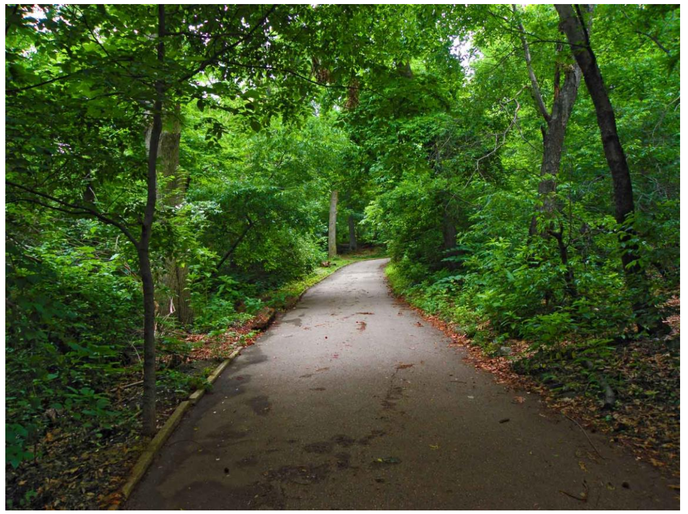
- Services provided by the following specialists: SLP, Dietitians, Social Work, Psychology, OT, PT
- Outpatient PSO services only
- Adult services (18+) only



Source: CAPO Standards 2010, adapted from March Fitch 2009

Draft principles and assumptions to guide our work

- ✓ Assume that patients are being appropriately screened and referred to PSO specialists as needed
- ✓ Assume a best practice/”blue sky” state
- ✓ Focus expert activities on patient populations that most require PSO specialist services when undergoing radiation therapy (i.e., high and average needs populations)
    - PSO services for populations who rarely or never require services to be costed via administrative data or other method



Cancer Care Ontario

Stratifying by Level of Need for Dietitian Services

High Need
Most intensive level of need; at least 50% of patients in high needs groups need to see a specialist multiple times across the cancer journey

- **High Needs group # 1:** Head and neck, Thyroid and Cervical Esophageal
- **High Needs Group # 2:** Gyne and Lower GI
- **High Needs group # 3:** Upper GI- non-cervical esophageal and stomach/pancreas/gallbladder/bile duct

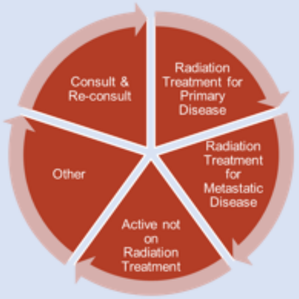
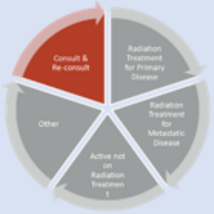
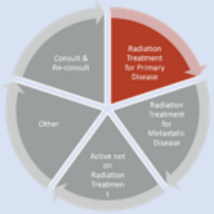
Average Need
a population is average needs if some (<50%) need to be seen by a specialist at least once during the cancer journey

- Lung
- CNS
- Sarcoma
- GU
- Lymphoma

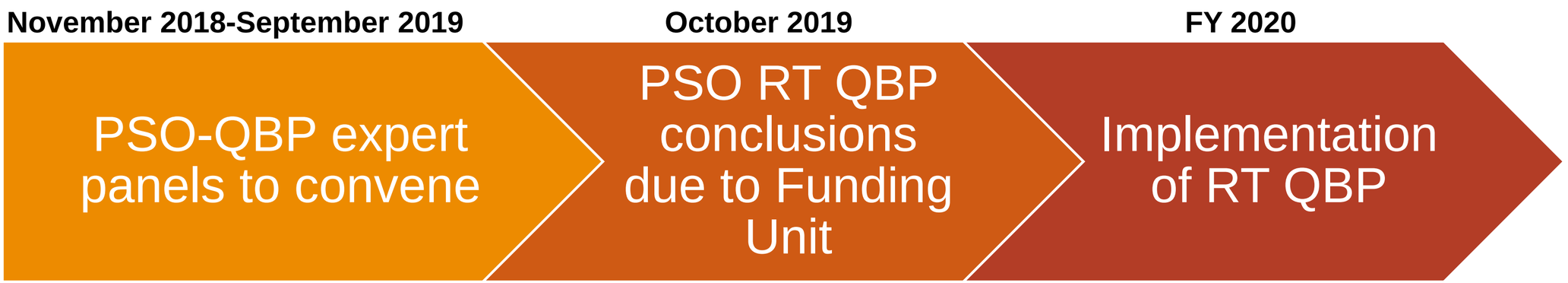
Very Low/No Need
a population is considered low/no needs if they rarely or never require specialist services

- Breast
- Leukemia
- Skin/melanoma
- Myeloma

Example: Quantifying Dietitian Needs for Head and Neck/Thyroid/Cervical Esophageal Patients

Phase/Bundle of Radiation Therapy Pathway → 		*Pre-Treatment*	*Treatment Phases*		*Post-Treatment Phases*	
		First Consult With a Radiation Oncologist 	**Radiation Treatment for Primary Disease** 	**Radiation Treatment for Metastatic Disease** 	**Well Follow-up Post-radiation** 	**EOL/Palliative Care Post-radiation** 
1	What kinds of nutritional issues might patients present with in this phase of care?					
2	What % of all patients in this group need a first consult with a dietitian in this phase of care?					
3	What % need a follow up visit with a dietitian in this phase of care?					
4	How many dietitian follow-up visits are needed during this phase of care, on average?					
5	What are key dietitian activities that would take place during this phase of care?					

RT QBP and PSO- high level timeline



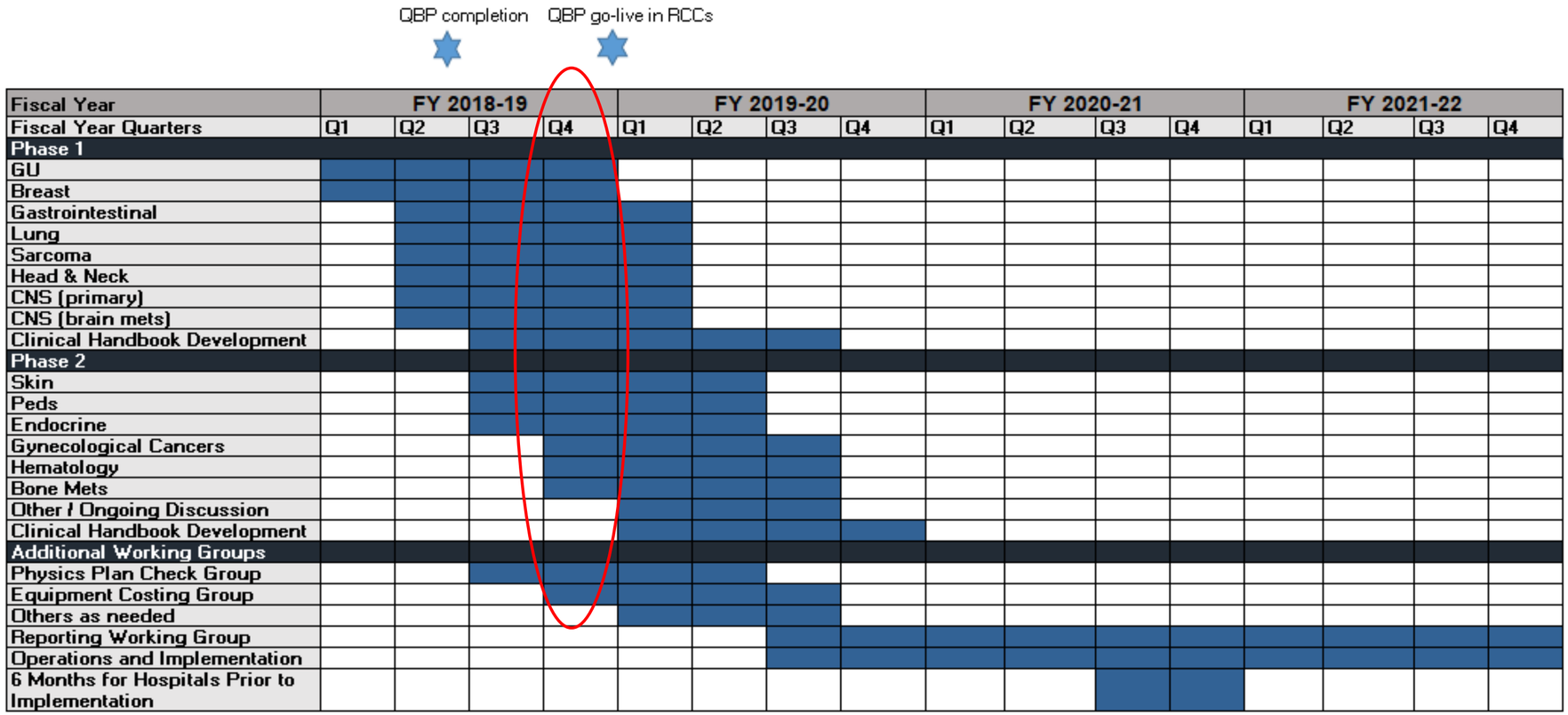
Current status:

- ✓ Recruitment complete for 6 PSO Expert Panels
- ✓ Consensus decision-making is in process for Dietitian, OT and SLP Expert Panels
- ✓ Dietitian, SLP and OT meetings to continue through January/February

Timelines

Clinical Development Timelines

High Level RT-QBP Gantt-Clinical Development Activities



Fiscal Year	FY 2018-19				FY 2019-20				FY 2020-21				FY 2021-22			
Fiscal Year Quarters	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Phase 1																
GU																
Breast																
Gastrointestinal																
Lung																
Sarcoma																
Head & Neck																
CNS (primary)																
CNS (brain mets)																
Clinical Handbook Development																
Phase 2																
Skin																
Peds																
Endocrine																
Gynecological Cancers																
Hematology																
Bone Mets																
Other / Ongoing Discussion																
Clinical Handbook Development																
Additional Working Groups																
Physics Plan Check Group																
Equipment Costing Group																
Others as needed																
Reporting Working Group																
Operations and Implementation																
6 Months for Hospitals Prior to Implementation																

Notes / Assumptions

Clinical disease sites timeline estimates are based on progress with the first four disease sites underway and include all activities up to the completion of the patient level data review with the funding team

Timeline Reference	
Q1	Apr 1 - Jun 30
Q2	Jul 1 - Sep 30
Q3	Oct 1 - Dec 31
Q4	Jan 1 - Mar 31

Next Steps

- Incorporate feedback from today's discussion and distribute the finalized GI RT-protocols and quality metrics to the group

Objectives for Today

GI RT-QBP Working Group Meeting:

- To provide an introduction to Health System Funding Reform (HSFR) ✓
- To review Gastrointestinal (GI) RT-QBP protocols for consideration ✓
- To review Gastrointestinal (GI) RT-QBP quality metrics for consideration ✓
- To review the Micro Costing and Infrastructure and Equipment funding approach ✓
- To provide an update on Psychosocial Oncology (PSO) ✓
- QBP Timelines and Next steps ✓