

Re-Irradiation in Practice: Streamlining Assessment in A Regional Cancer Centre

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ABSTRACT

Purpose:
To evaluate and streamline Re-Irradiation (RI) assessment practices at a regional cancer centre.

Methods:
A four-month retrospective review was conducted. Clinical workflow, treatment intent, assessment complexity, time efficiency, and documentation were evaluated.

Results:
Of 1,900 cases, 17.5% were flagged for overlap; only 1.4% required full RI assessment. Cases varied significantly (1–27 prior plans, multiple OARs).

Key challenges included:

- Case identification
- Cumulative dose assessment
- Inconsistent EQD2 use

Many cases did not require full assessment. A shortened pathway and multidisciplinary review improved efficiency and consistency.

Conclusion:
RI planning is complex and resource-intensive. Standardized workflows and multidisciplinary collaboration improve efficiency, consistency, and clinical decision-making.

CONTACT

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INTRODUCTION

Re-irradiation (RI) is increasingly used in modern radiotherapy, yet standardized workflows to support safe and efficient practice remain limited.

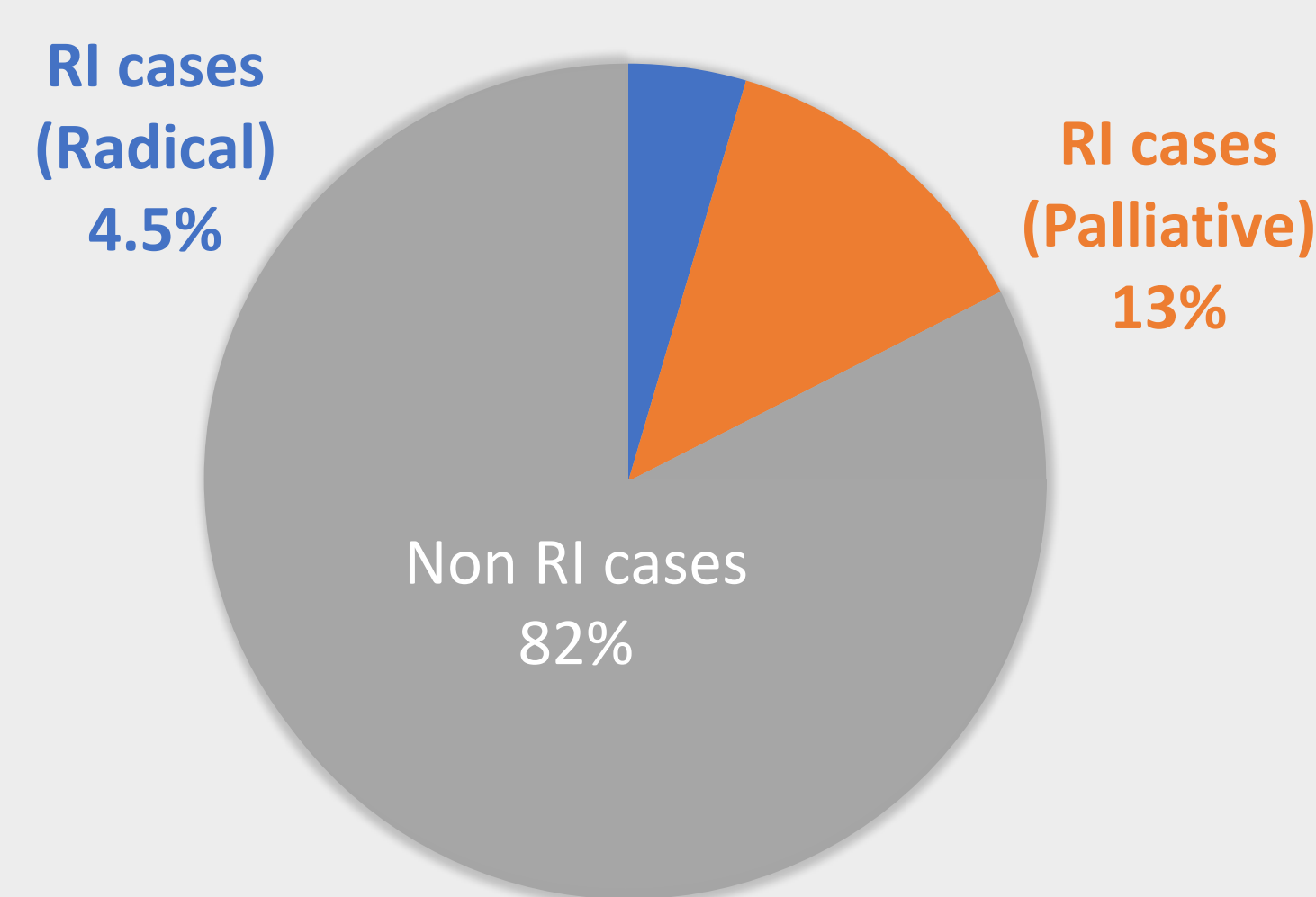
Findings in this review enabled our centre to identify areas for improvement, standardize and optimize our local RI practice.

METHODS AND MATERIALS

- Retrospective review of 4 months.
- All potential overlap cases identified by Radiation Oncologists (ROs) went for a **full RI assessment**:
 - ✓ **Image registration**
 - ✓ **Evaluation of prior treatments**
 - ✓ **EQD2 calculations**
 - ✓ **Documentation**
- Current practice was evaluated including
 - ✓ treatment intent
 - ✓ time efficiency
 - ✓ documentation completeness and
 - ✓ challenges encountered.

RESULTS AND DISCUSSION

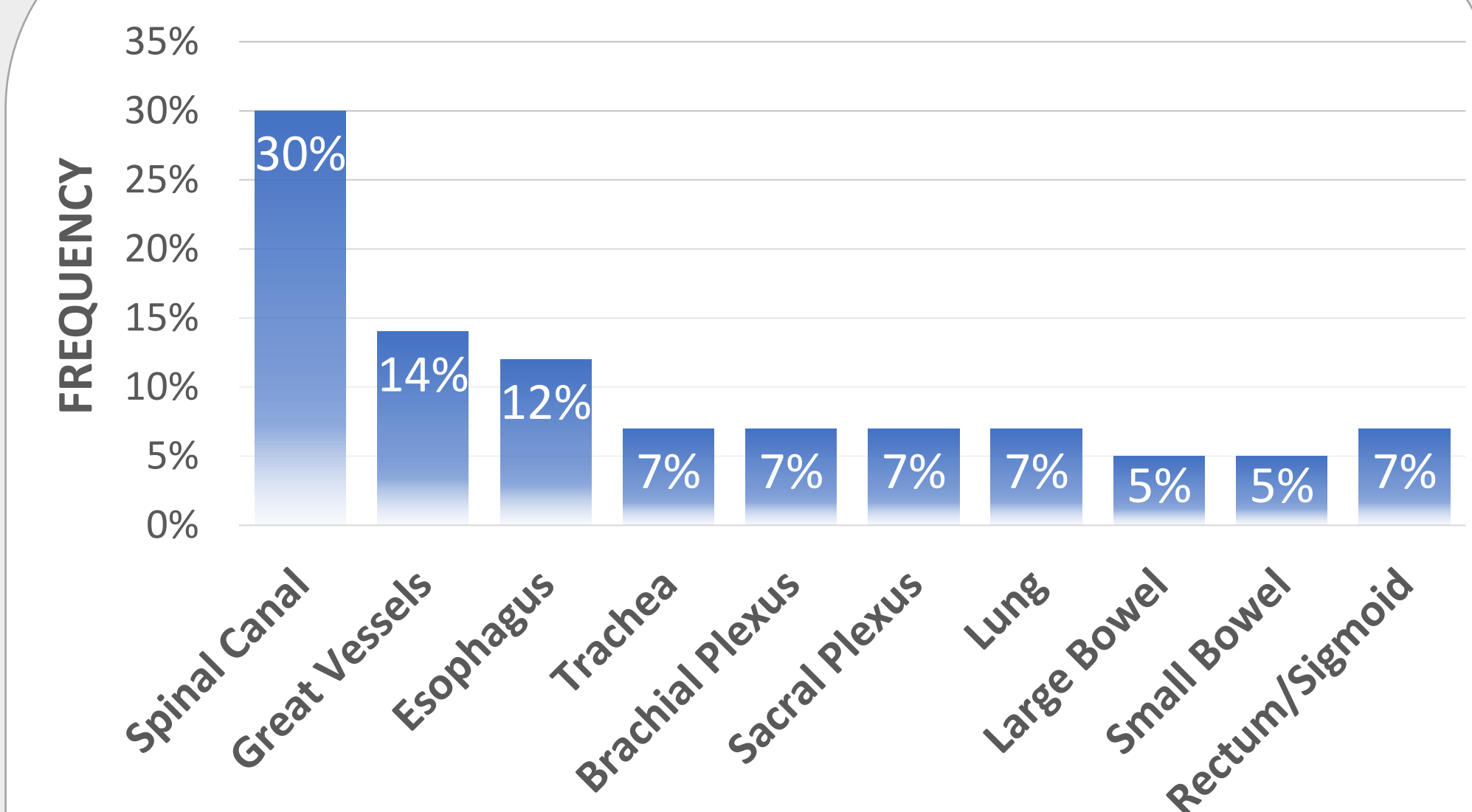
CASE DISTRIBUTION



Complexity of RI cases driven primarily by:

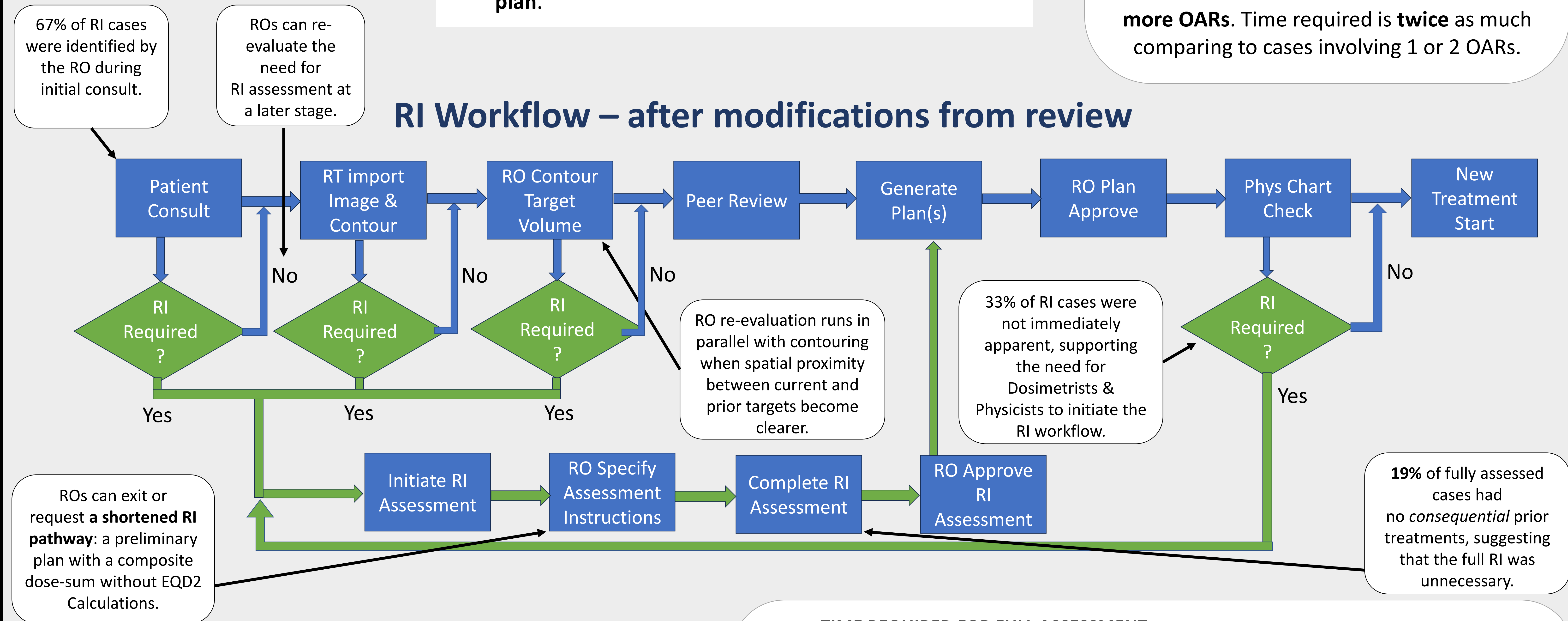
- 1) The number of previous relevant treatments
 - Ranged from 1-27 previous treatments, but only **0-7** of these were **clinically consequential**.
- 2) The number and type of organs at risk (OARs) involved
 - **52%** of cases sent for full assessment **did not require EQD2** calculations.
 - **85%** would have benefited from an initial **preliminary plan**.

CONCERNING OARS



40% of RI cases involved concerns of **3 or more OARs**. Time required is **twice** as much comparing to cases involving 1 or 2 OARs.

RI Workflow – after modifications from review

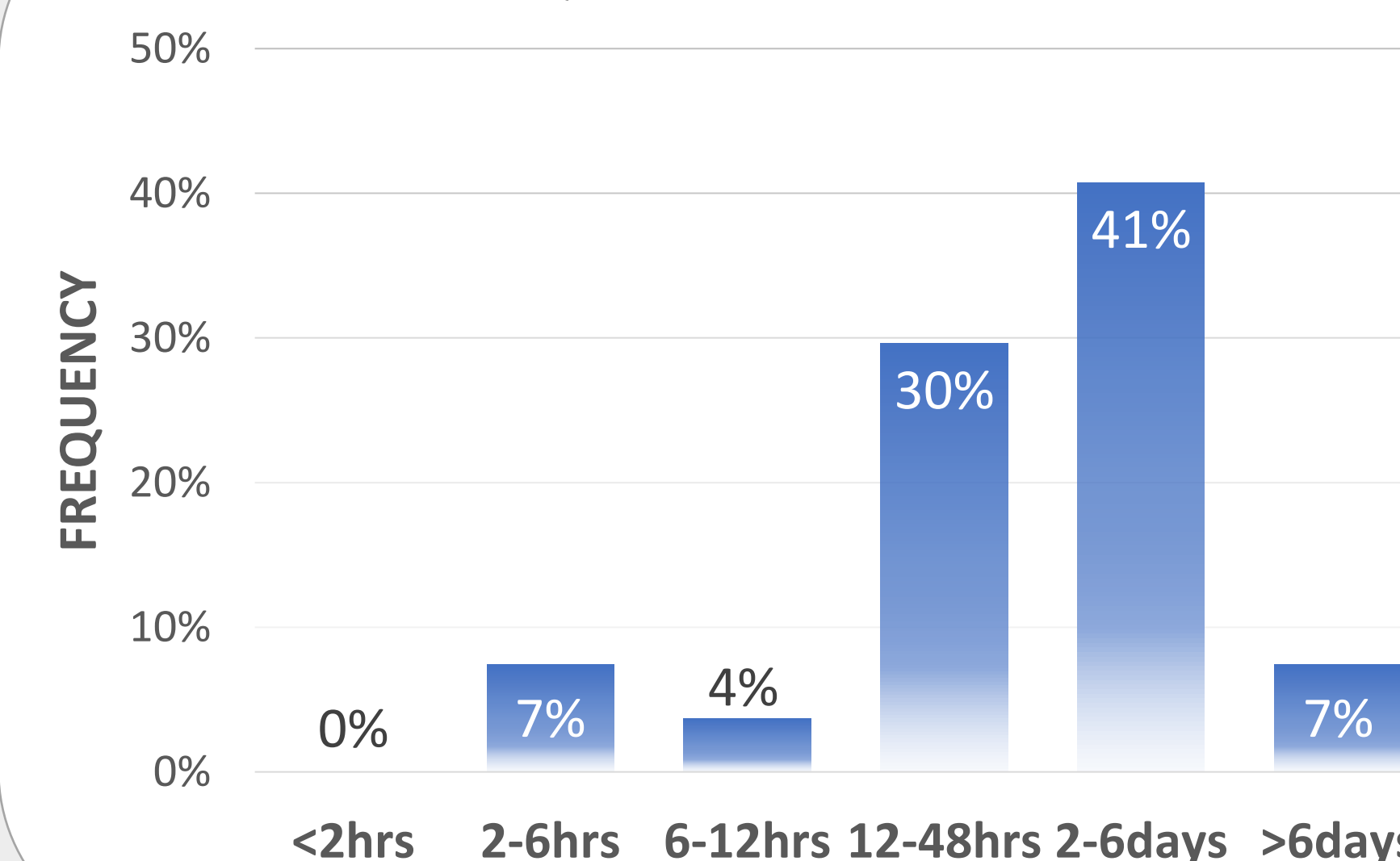


Statistics

Characteristics of RI cases			Frequency
Dose-Fractionation	20 Gy in 8 fractions	9%	
	50 Gy in 5 fractions	6%	
	40 Gy in 5 fractions	9%	
	30 Gy in 5 fractions	15%	
	25 Gy in 5 fractions	9%	
	20 Gy in 5 fractions	6%	
	48 Gy in 4 fractions	6%	
	24 Gy in 2 fractions	6%	
	8 Gy in 1 fraction	12%	
	Other	24%	
Previous Site	Brain	8%	
	Lung	14%	
	Esophagus	3%	
	Breast	15%	
	Prostate	7%	
	Endometrium	3%	
	Liver	3%	
	Other	48%	

Characteristics of RI cases			Frequency
Current Site	Brain	4%	
	Lung	22%	
	Esophagus	7%	
	Breast	37%	
	Prostate	11%	
	Endometrium	7%	
	Rectum	4%	
	Kidney	7%	
Types of RI	Category 1	67%	
	Category 2	8%	
	Mixed	25%	
Primary Histology	Radical	Palliative	
	Brain	4%	
	Lung	12%	
	Esophagus	4%	12%
	Breast	12%	4%
	Prostate	12%	28%
	Endometrium	4%	
	Rectum	4%	4%
	Kidney	8%	

TIME REQUIRED FOR FULL ASSESSMENT



74% of cases were **inherently difficult** (determining the correct vertebral level, assessing small bowel mobility or visualizing the brachial plexus).

48% of cases flagged at consultation could have been managed with the shortened RI pathway.

CONCLUSIONS

This review highlights the complexity and variability of RI planning, the challenges involved and the need for a multidisciplinary approach to streamline the process.