

CONTENTS

1.	INTRODUCTION	1
1.1.	Background to IAEA activities in auditing	2
1.2.	Purpose	3
2.	AUDIT STRUCTURE FOR QUATRO MISSIONS	4
2.1.	Request for an audit	4
2.2.	Composition of on-site audit teams	5
2.3.	Preparation for the audit	5
2.3.1.	Role of the institution	6
2.3.2.	Role of the auditors	6
2.3.3.	Role of the IAEA	6
2.4.	Guiding principles and procedures of audits	7
2.4.1.	Entrance briefing	7
2.4.2.	Assessment	8
2.4.3.	Exit briefing	8
2.5.	Conclusion of the audit team	9
2.6.	The audit report	10
2.7.	Dissemination of the report	10
3.	INFRASTRUCTURE	11
3.1.	Aims of a radiotherapy department	11
3.1.1.	Objectives of a radiotherapy department	11
3.1.2.	Patient demographics	12
3.2.	Structure of a radiotherapy department	12
3.2.1.	Personnel	12
3.2.2.	Departmental operation	13
3.2.3.	Premises	14
3.2.4.	Radiation therapy equipment	14
3.3.	Communications	15
3.4.	Quality management system	15
3.5.	Radiation protection of patients, staff and the general public	16
3.6.	Workload	16
3.6.1.	Patient throughput on radiotherapy equipment	16
3.6.2.	Statistics	17

4.	PATIENT RELATED PROCEDURES	18
4.1.	Identification of patients	18
4.2.	Diagnosis and staging	20
4.3.	Indications and decision to treat	22
4.4.	Treatment preparation: Instructions for planning	23
4.5.	Prescription and planning	26
4.6.	From planning to delivery	29
4.7.	Treatment delivery: Teletherapy	30
4.8.	Deviations in radiotherapy administration	33
4.9.	Brachytherapy for gynaecological cancer	34
4.10.	Treatment summary (documentation)	37
4.11.	Follow-up	38
4.12.	Review of typical treatments	38
5.	EQUIPMENT RELATED PROCEDURES	40
5.1.	Equipment quality assurance: Aspects related to medical physics	40
5.1.1.	Introduction	40
5.1.2.	Quality assurance checklists for medical physics aspects	41
5.1.3.	Verification of consistency of dosimetry data and procedures	55
5.1.3.1.	Dosimetry for external beam radiotherapy ..	56
5.1.3.2.	Clinical dosimetry	57
5.1.3.3.	External beam treatment planning system ..	59
5.1.3.4.	Brachytherapy	59
5.1.4.	Exit interview and the end-of-mission report	60
5.2.	Equipment quality assurance: Aspects related to radiation therapists	61
5.2.1.	Introduction	61
5.2.2.	Quality assurance checklists: Aspects related to radiation therapists	61
6.	TRAINING PROGRAMMES	64
6.1.	Academic programme	64
6.2.	Clinical programme	64
6.3.	Research	65

6.4.	Professional accreditation	65
6.5.	Continuous professional education	66
APPENDIX I:	RADIATION ONCOLOGY IN LIMITED RESOURCE SETTINGS	67
APPENDIX II:	REMARKS ON THE CONSISTENCY OF THE TERMINOLOGY USED IN RADIOTHERAPY ...	71
APPENDIX III:	REMARKS ON THE ENUMERATION OF PATIENTS AND CANCER CASES	73
ACKNOWLEDGEMENTS		75
REFERENCES		77
CONTRIBUTORS TO DRAFTING AND REVIEW		79