

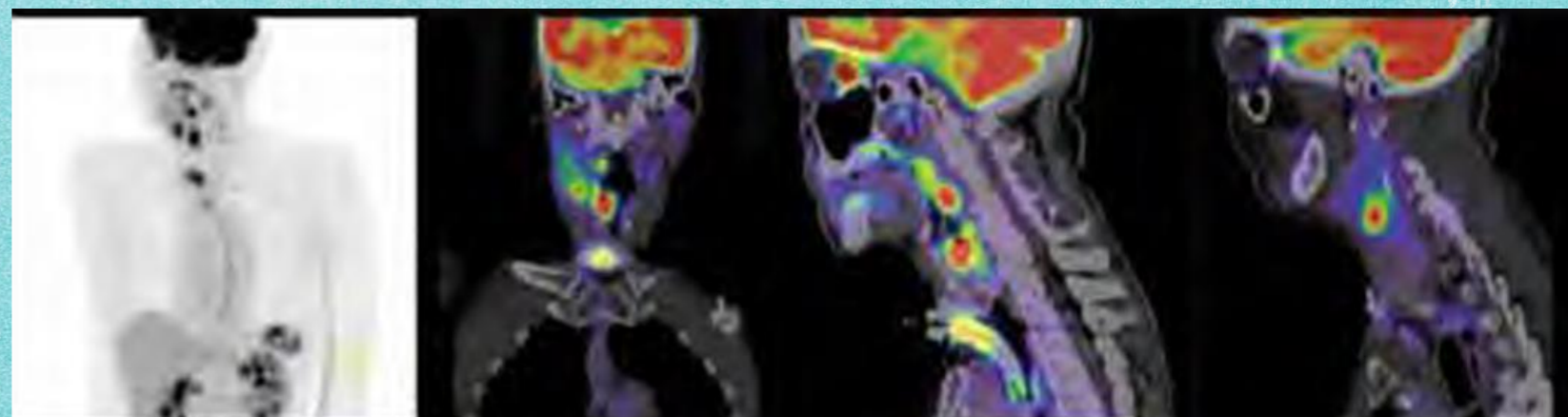
SENCIR 2016

Aplicações Médicas das Radiações Ionizantes

PROF. DR. ARNALDO PRATA MOURÃO

Introdução

- ▶ **Imagens Radiológicas;**
- ▶ **Medicina Nuclear;**
- ▶ **Radioterapia;**
- ▶ **Outras.**

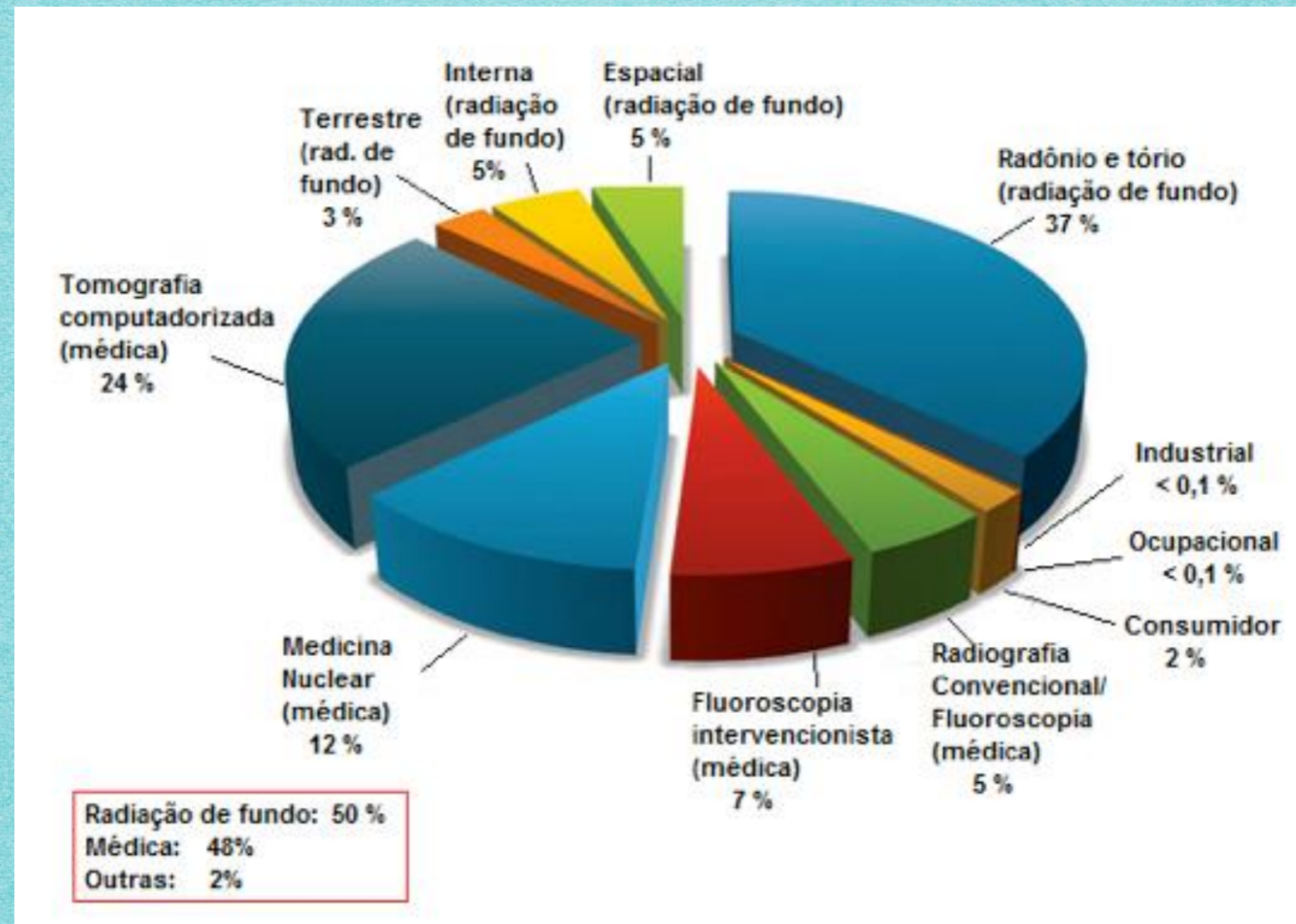


Imagens Radiológicas

- ▶ Radiografias digitais (CR, DR);
- ▶ Mamografia & Tomossítese de mama;
- ▶ Tomografia Computadorizada;
- ▶ Fluoroscopia e hemodinâmica.

*DOSIMETRIA
&
QUALIDADE DE IMAGEM*

Imagens Radiológicas



- ▶ Dose efetiva na população dos EUA em 2006 para diversas categorias [NCRP 2006].

Métodos de dosimetria

- ▶ **Câmaras de ionização;**
- ▶ **Dosímetros Termoluminescentes;**
- ▶ **Filmes radiocrômicos;**
- ▶ **Placas de Fósforo.**

Métodos de dosimetria

Câmaras de ionização



Métodos de dosimetria

▶ Câmaras de ionização

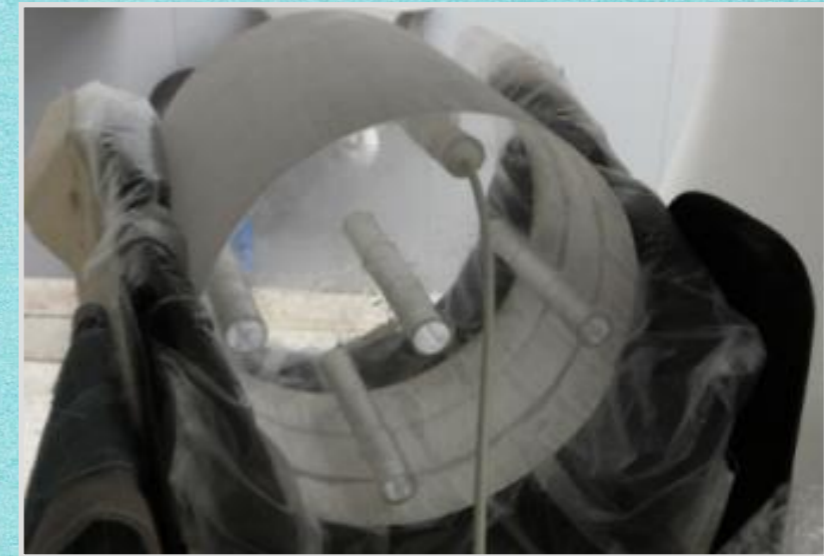


Table 1. Absorbed dose values ($C_{PMMA,100}$) in mGy.

Position	Phantom			
	Cylindrical		Oblique	
	Dose	SD	Dose	SD
C	5.34	0.03	6.53	0.03
3	11.32	0.03	8.77	0.03
6	9.08	0.09	10.85	0.04
9	10.71	0.06	9.00	0.35
12	11.52	0.07	14.35	0.03

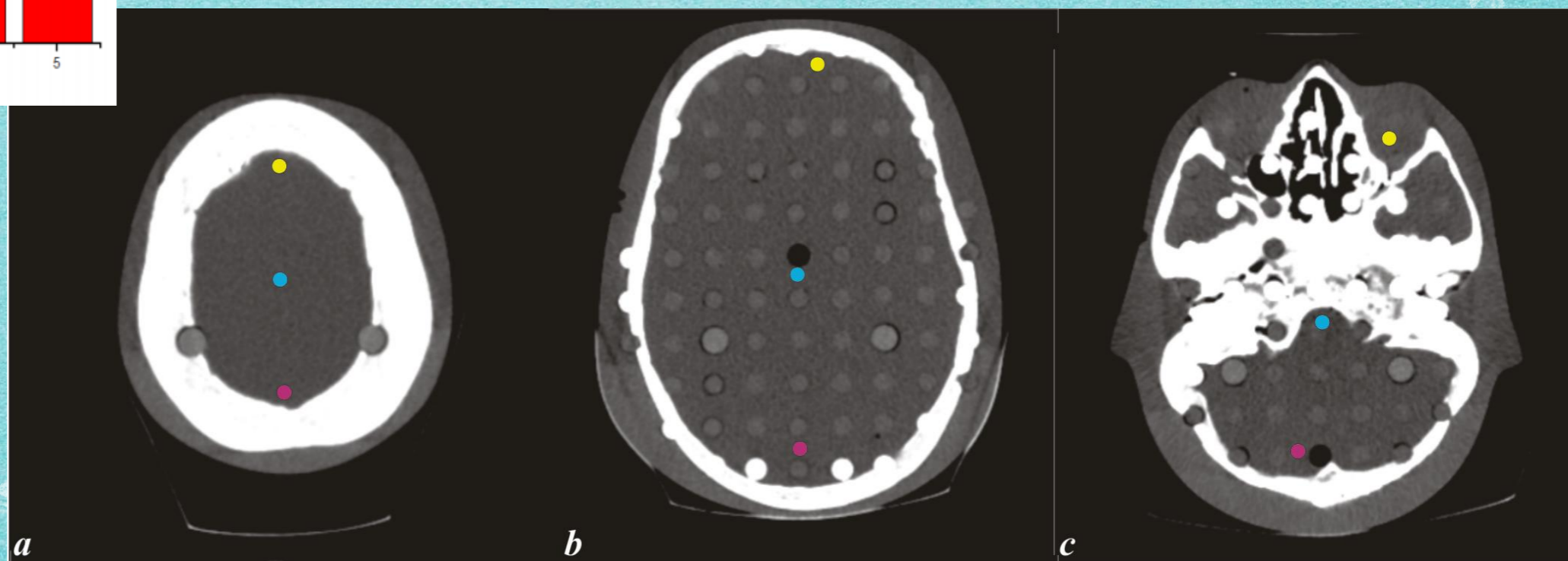
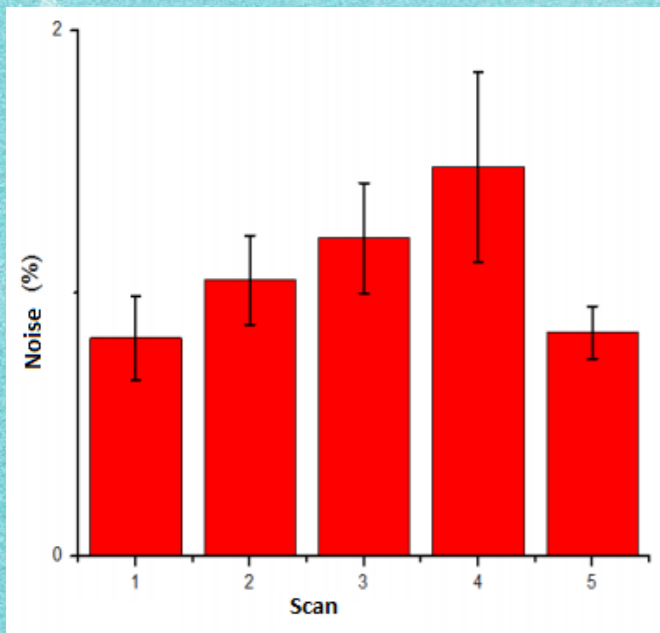
Métodos de dosimetria

▶ Dosímetros Termoluminescentes



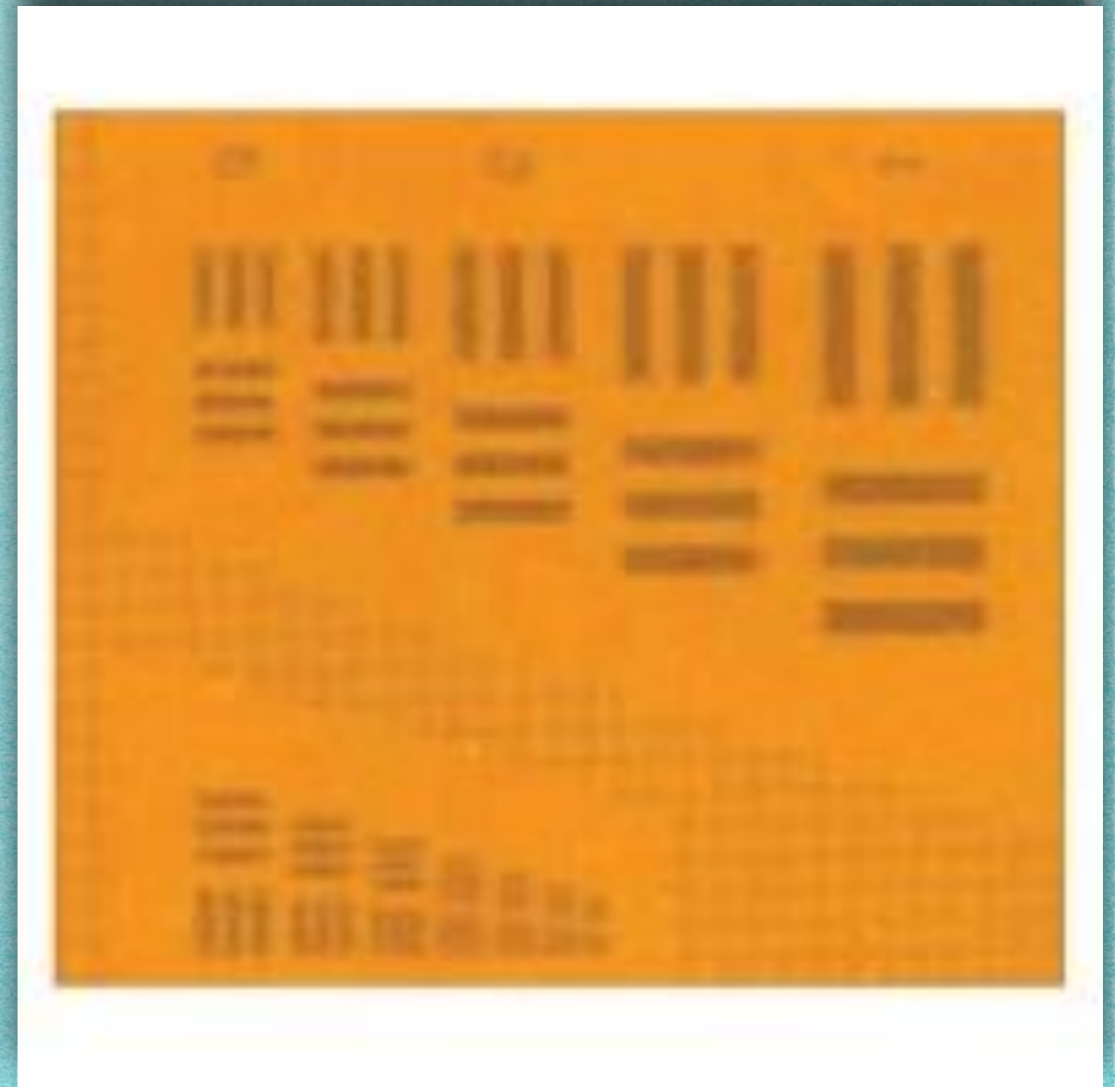
Métodos de dosimetria

▶ Dosímetros Termoluminescentes



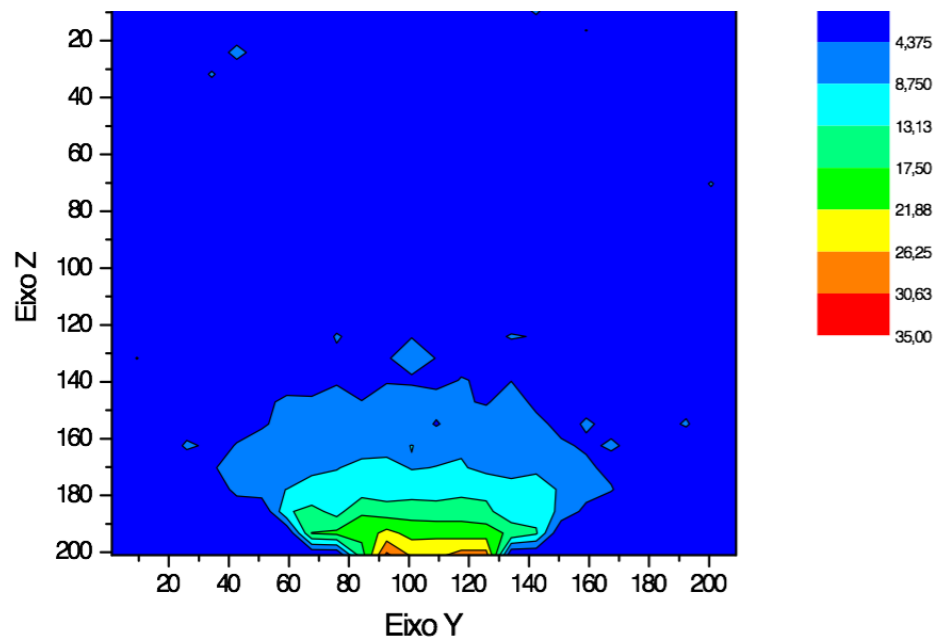
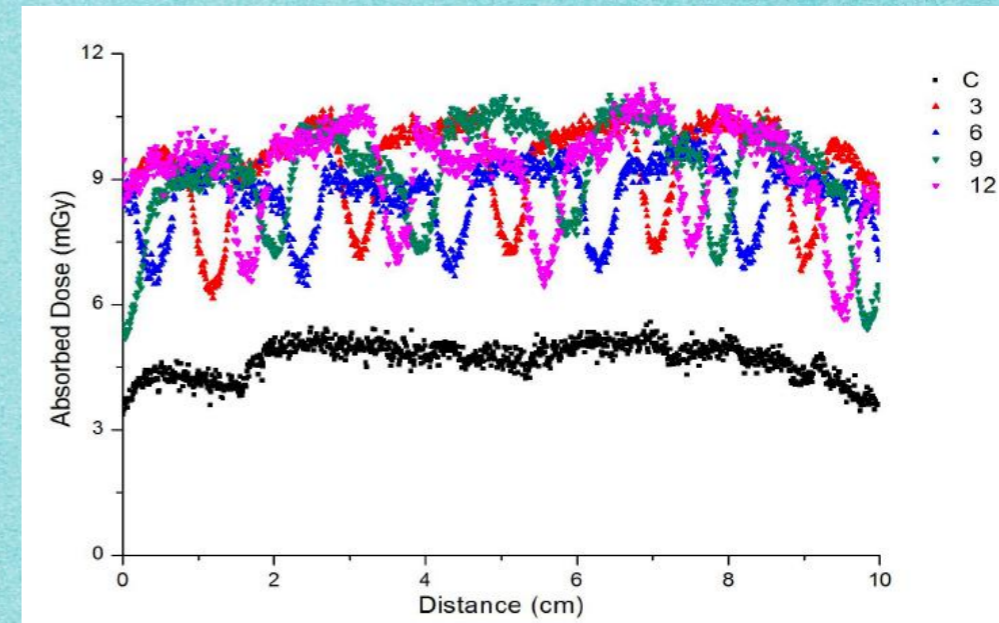
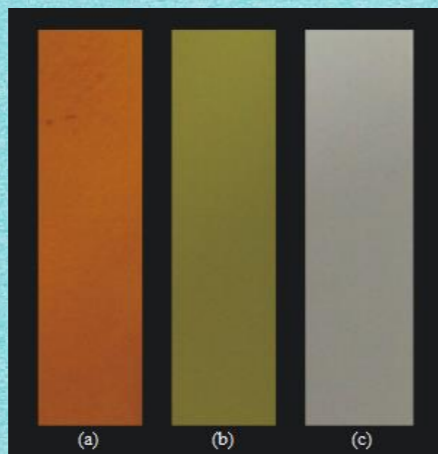
Métodos de dosimetria

Filmes radiocrômicos



Métodos de dosimetria

Filmes radiocrômicos



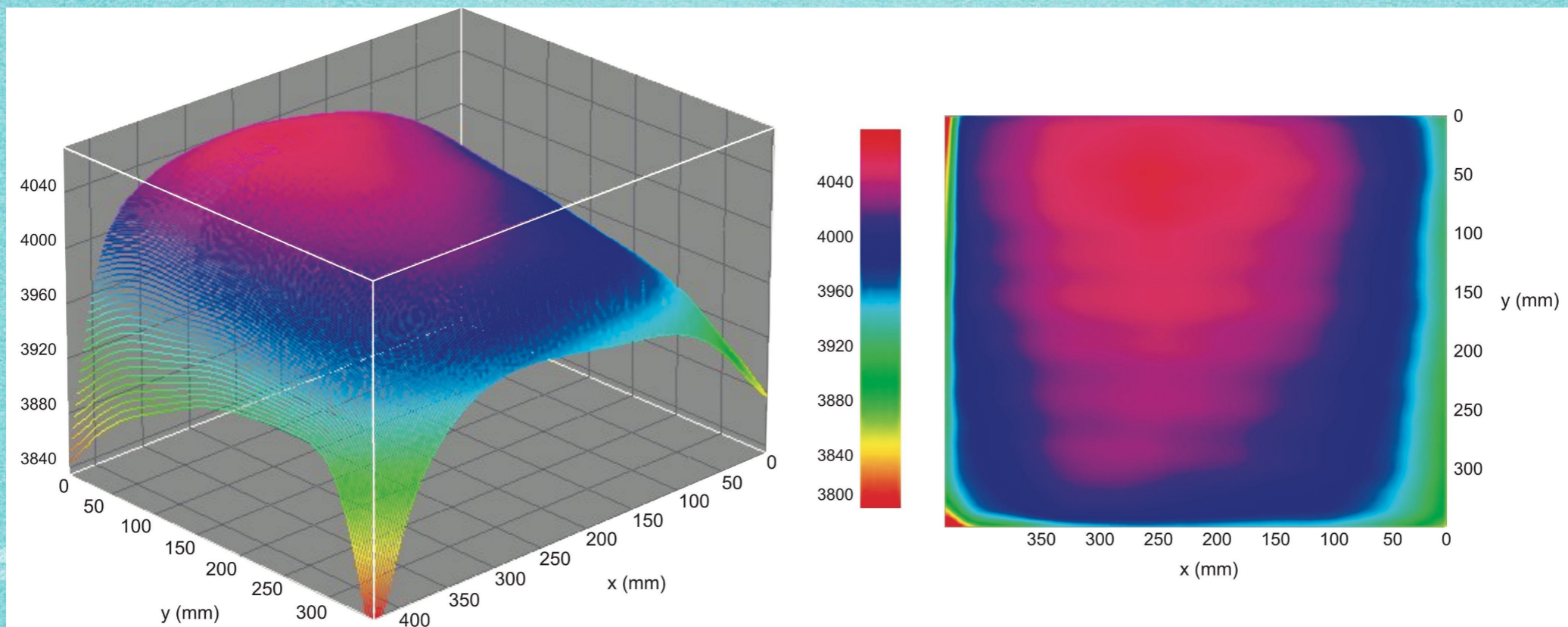
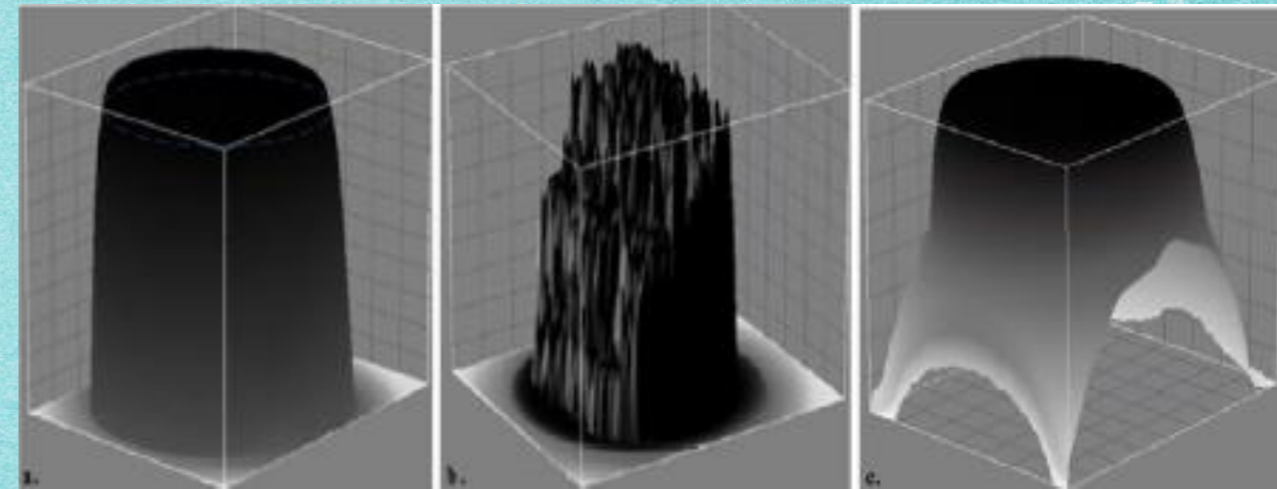
Métodos de dosimetria

Placas de fósforo

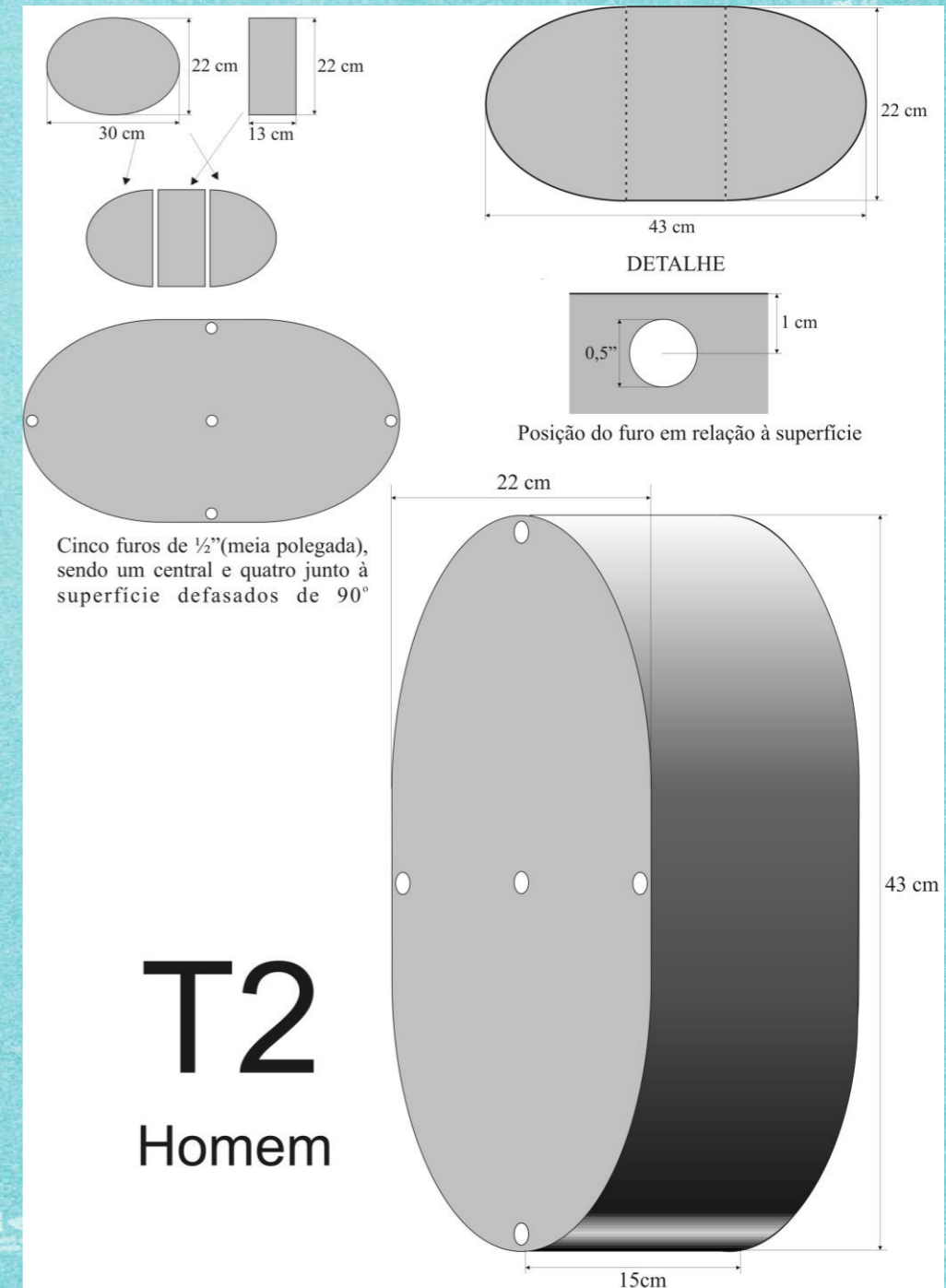
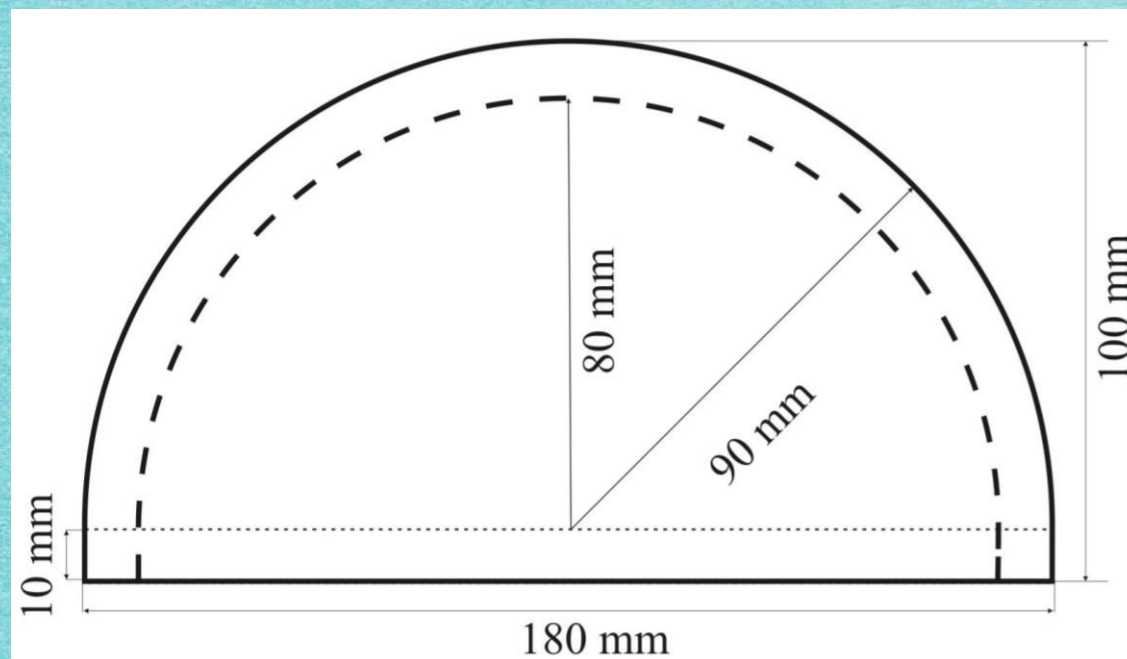
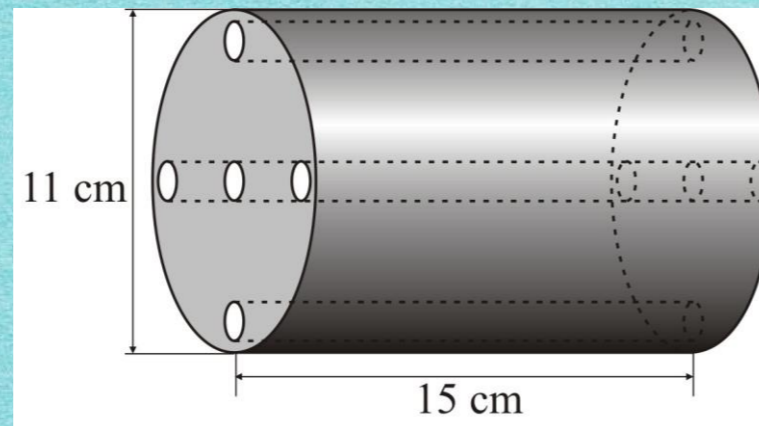


Métodos de dosimetria

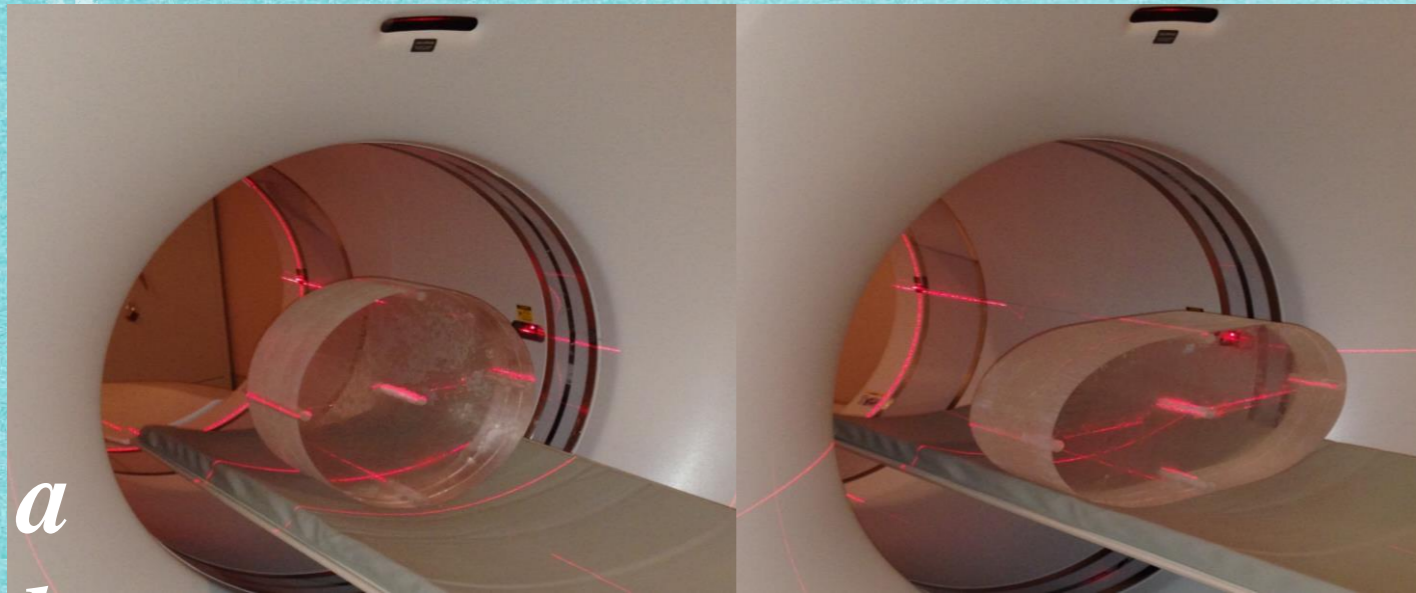
Placas de fósforo



Desenvolvimento de objetos simuladores

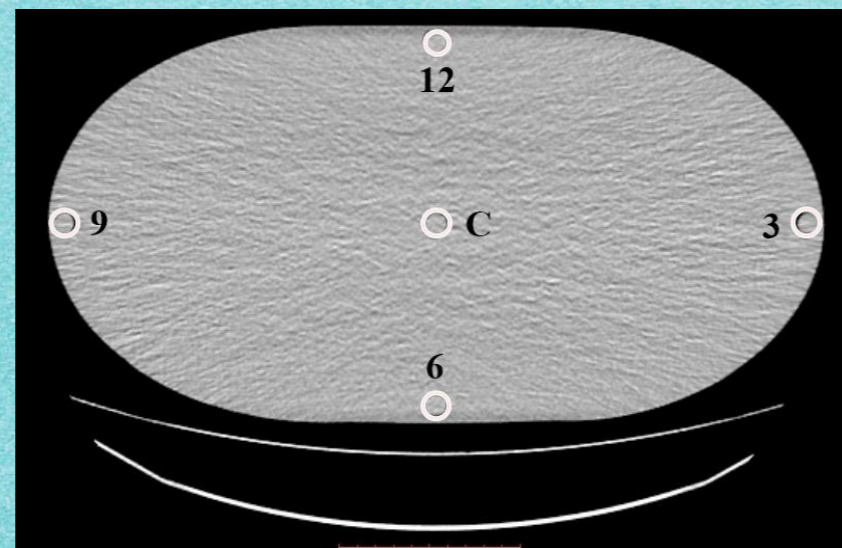
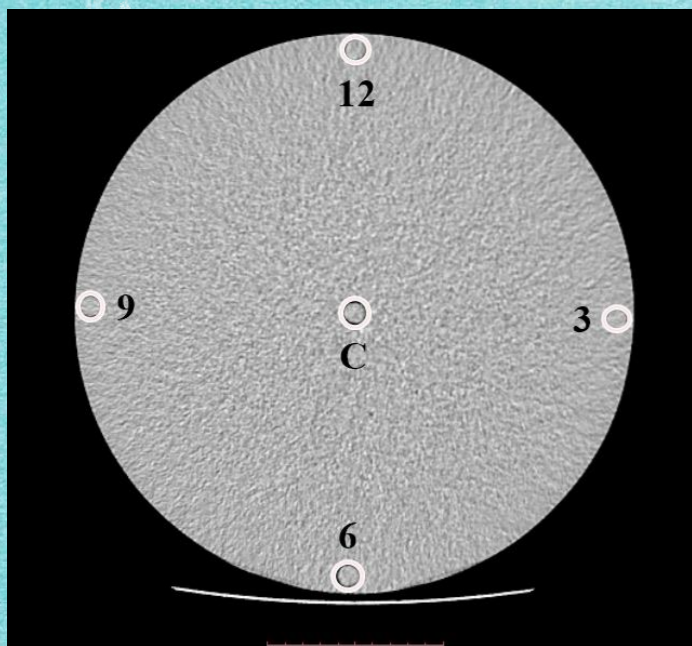


Trabalhos



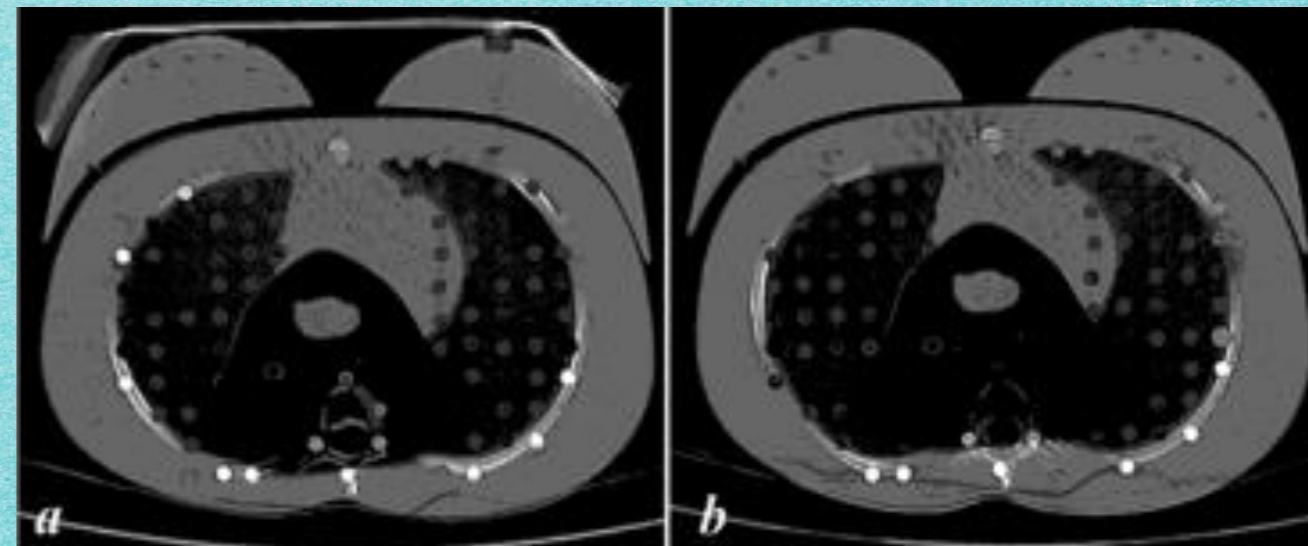
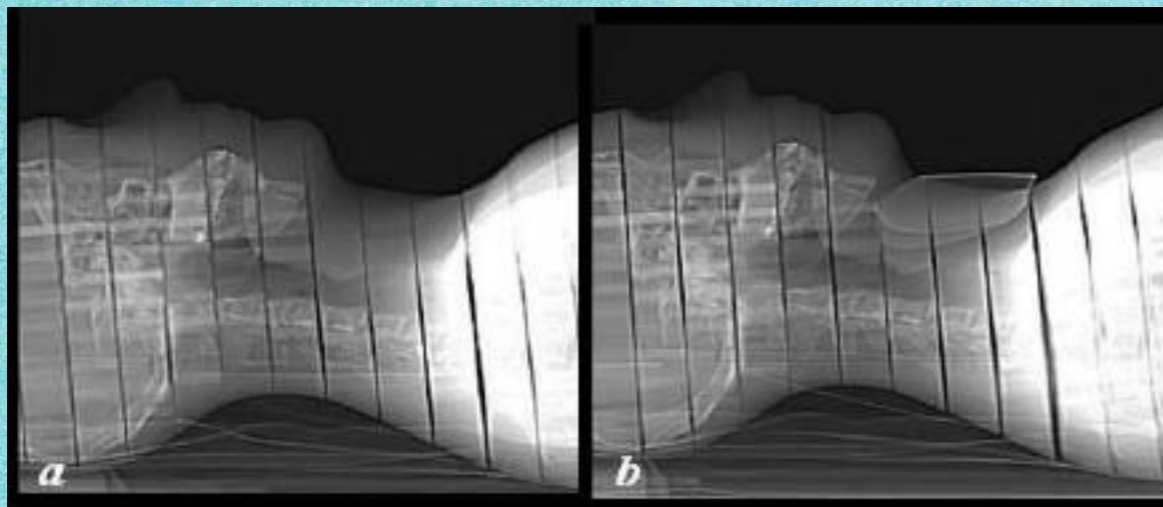
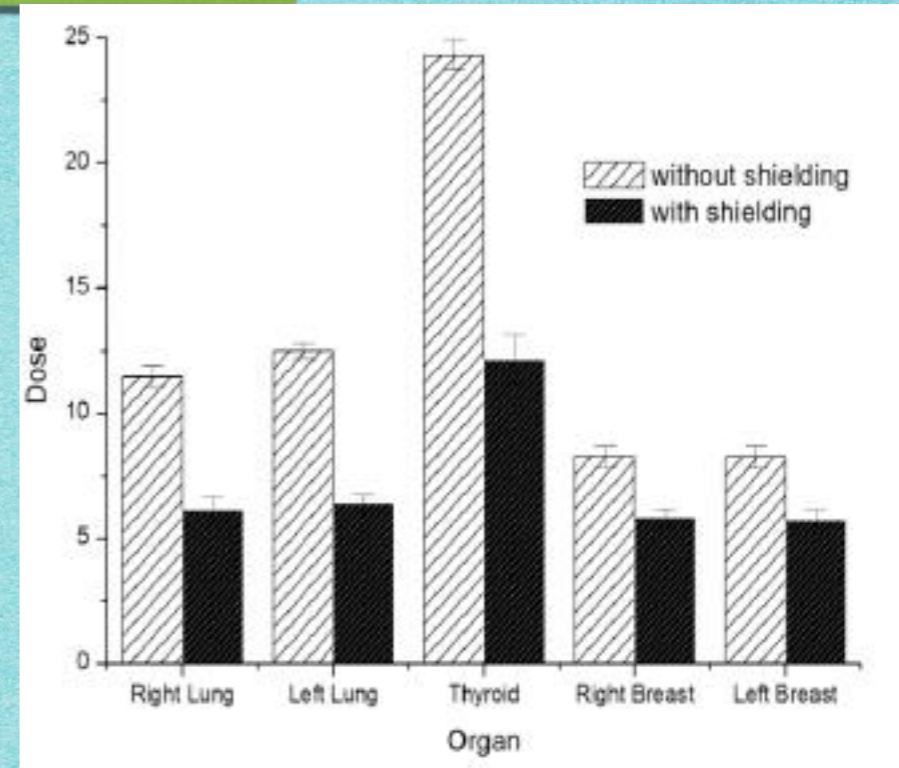
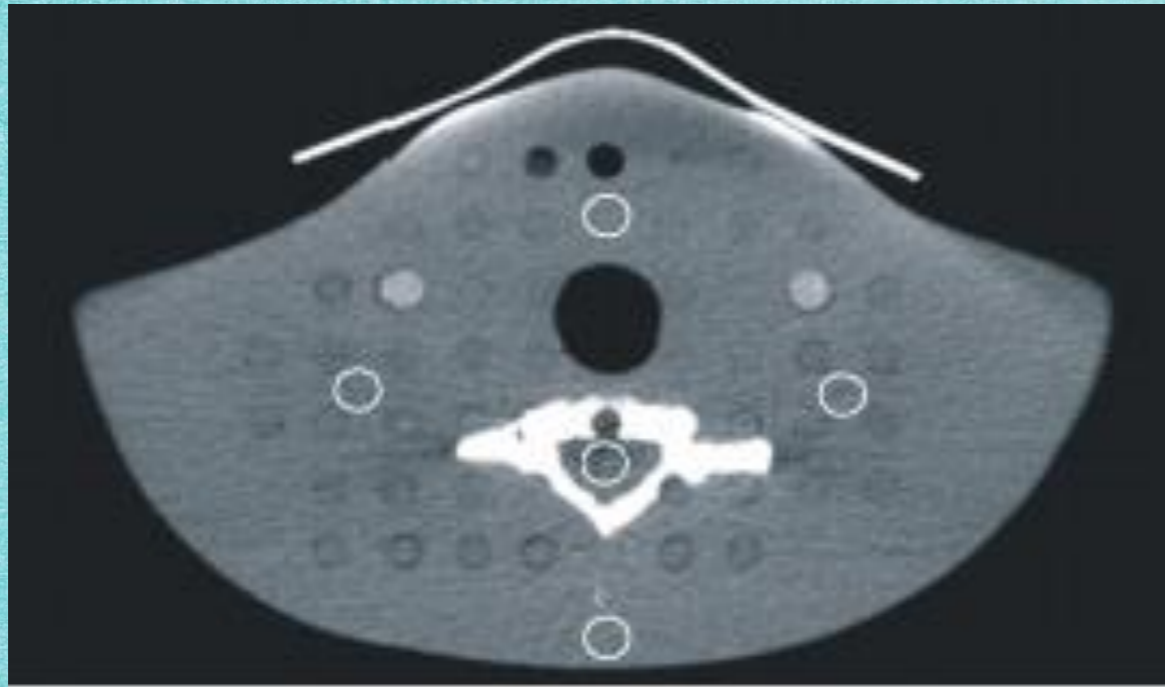
a

b

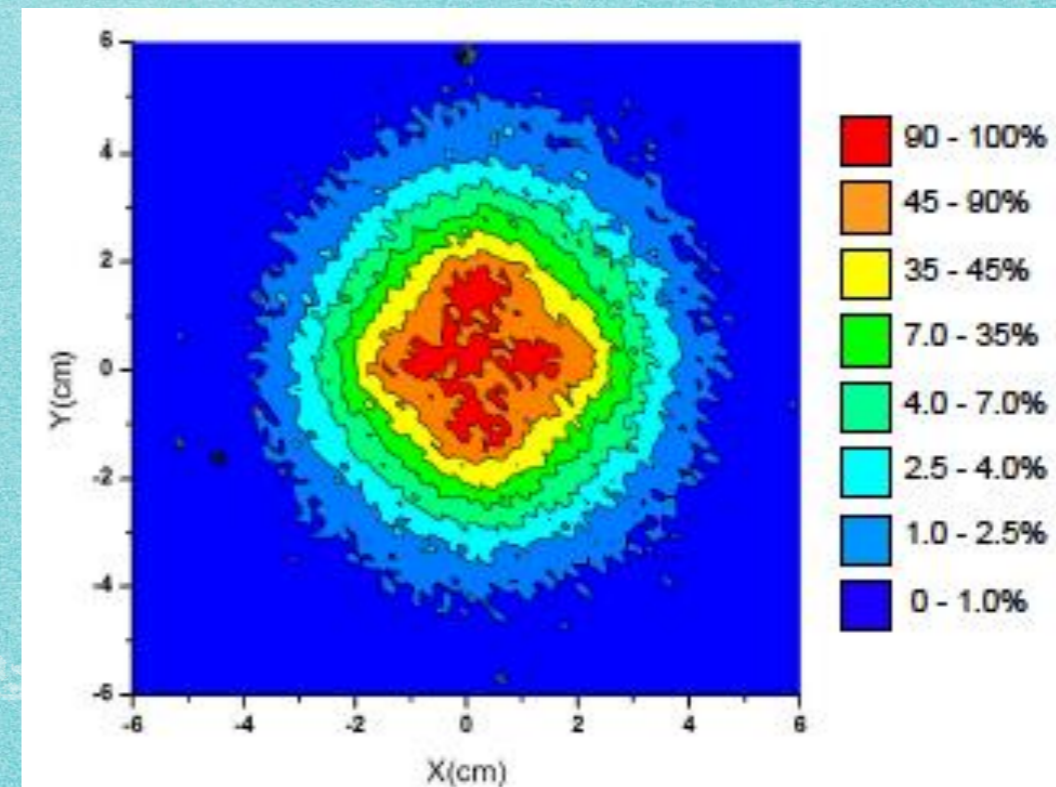
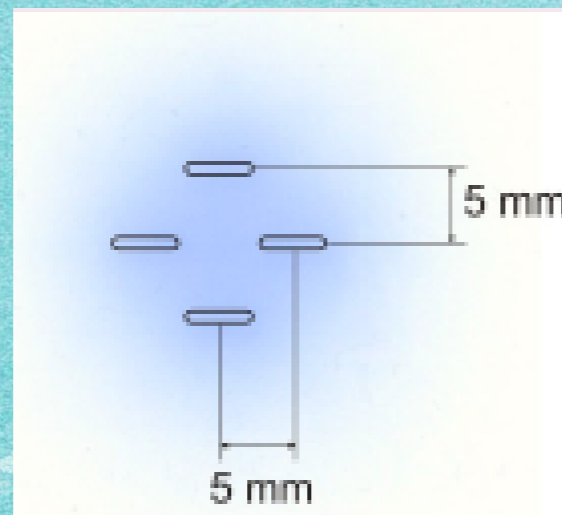
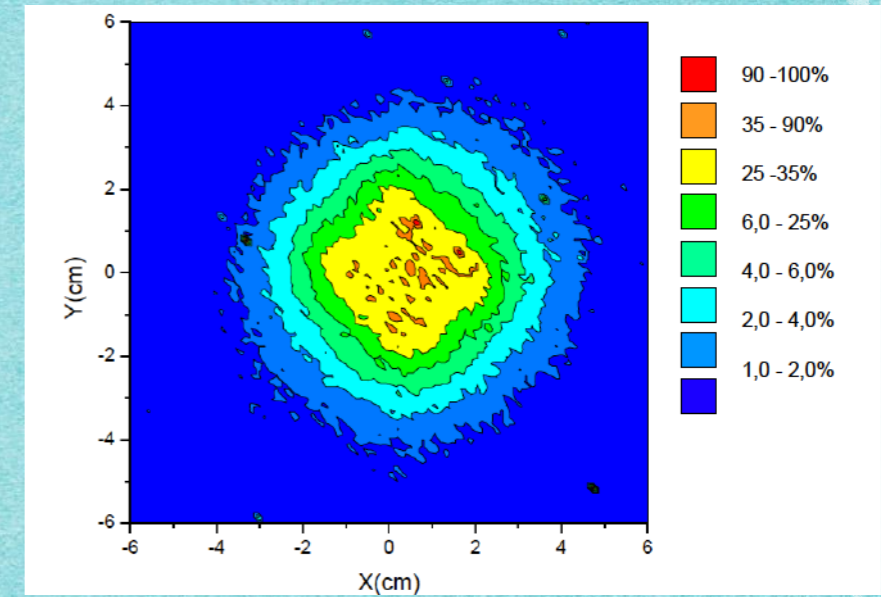
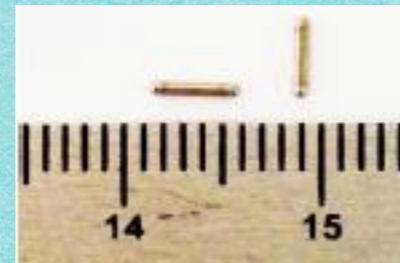
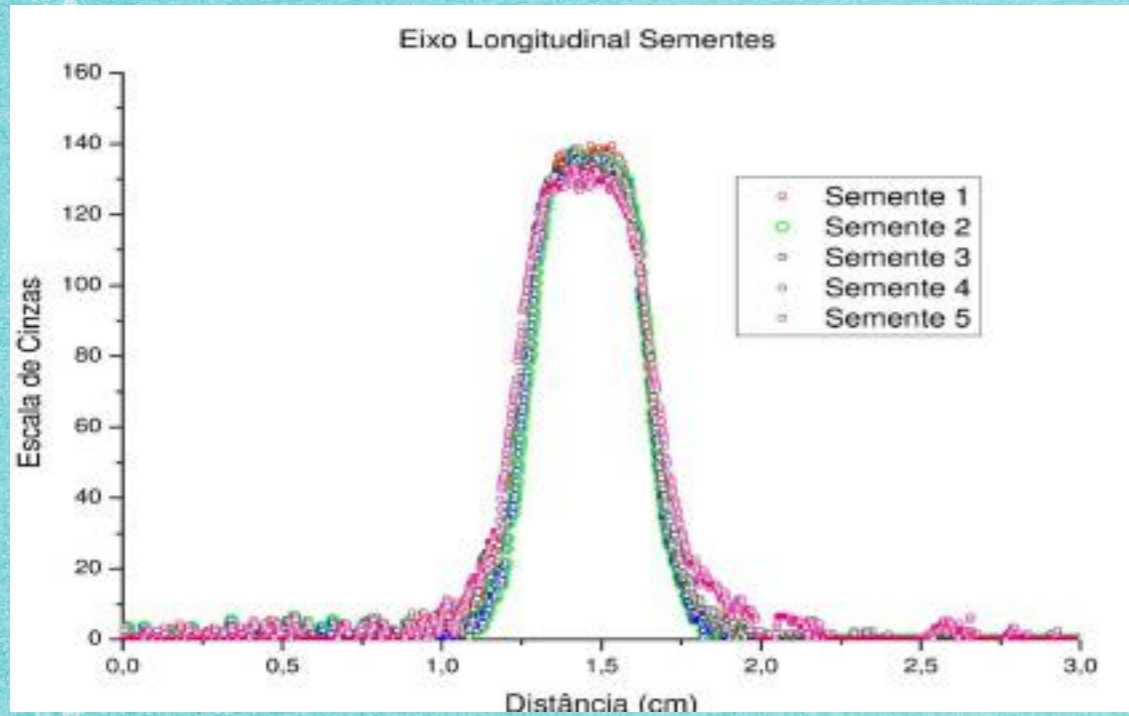


Position	Noise (%)	
	Cylindrical	Oblong
C	2.89	1.73
3	1.91	2.09
6	2.53	1.77
9	2.12	2.36
12	2.47	1.62
Average	2.47	1.77
SD	0.38	0.30

Trabalhos



Trabalhos



Outros trabalhos

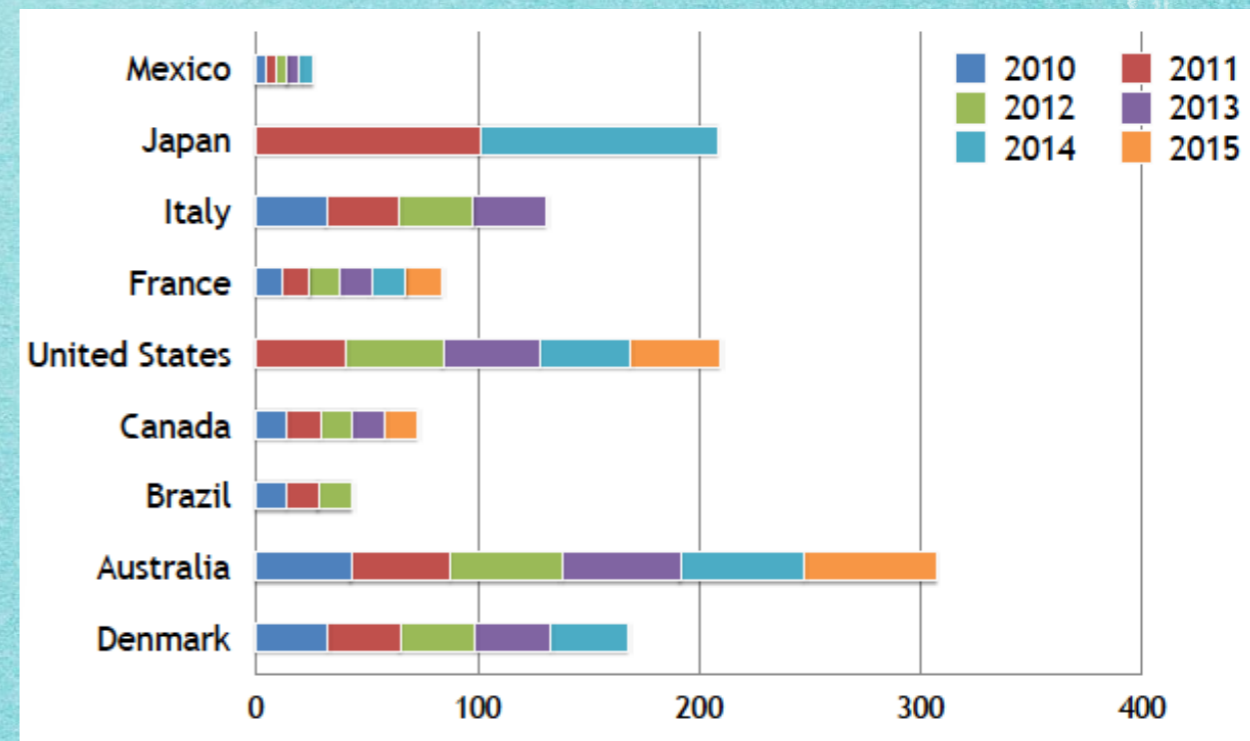
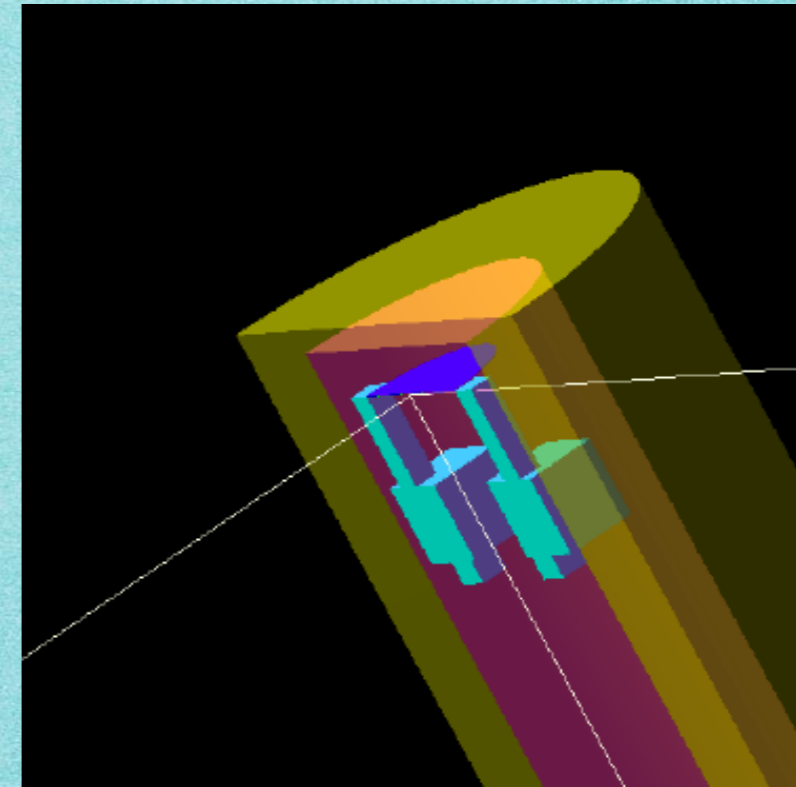
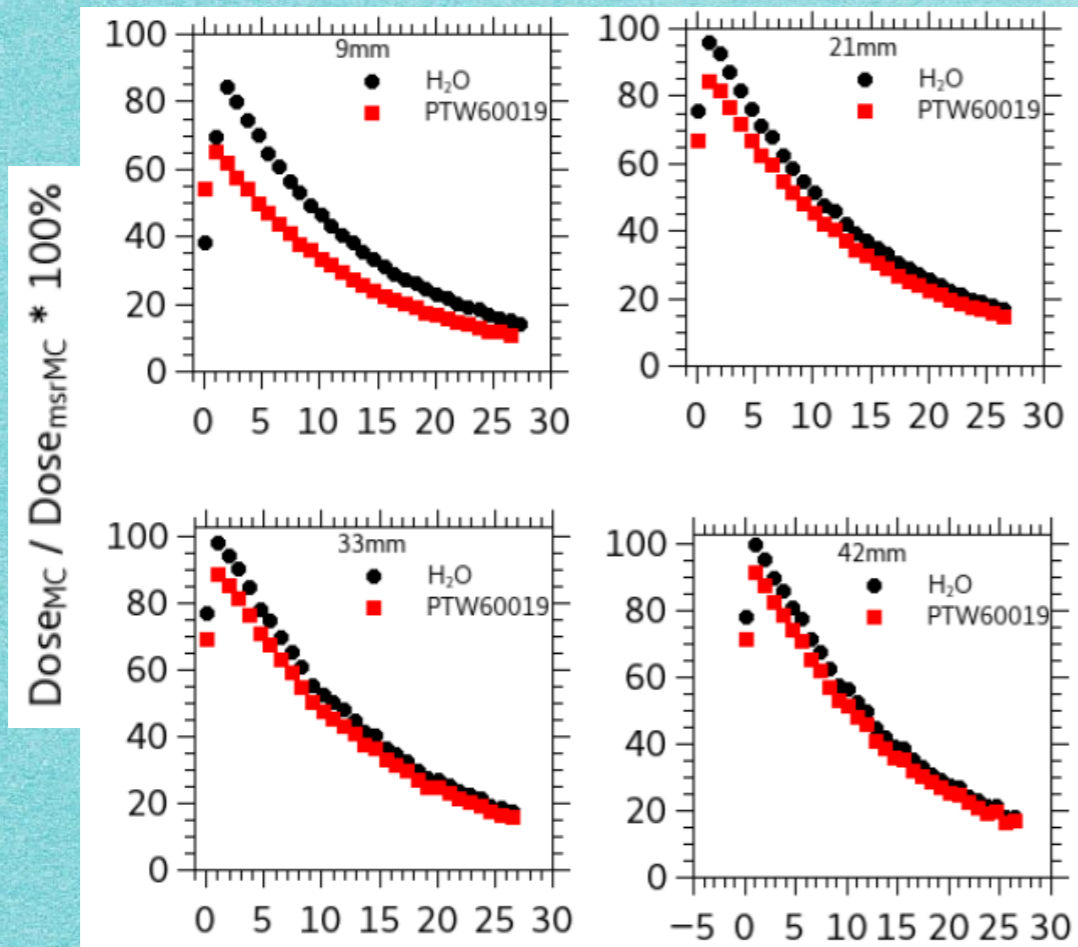


Figure 2. CT scanner distribution per million population - 2010-2015

Métodos de dosimetria



Obrigado!