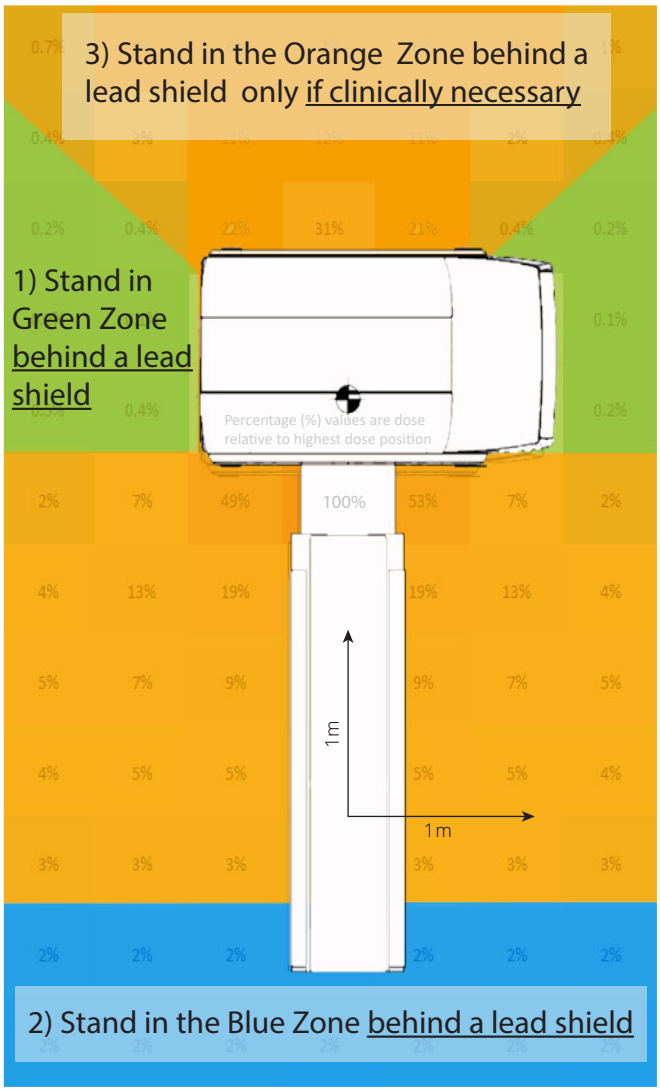
Staff Standing Positions During Patient Chest CT

Radiation Safety for Clinical Staff who must remain in the scan room and cannot wear lead aprons due to Covid19 infection control requirements

Based on Siemens SOMATOM Definition Flash CT Scanner



Chest CT X-Ray Scatter in Perspective

Equivalent Hours Flying* on an international flight compared to dose from standing in the room for one Chest CT with No X-ray Shielding

2	12	18	19	18	12	3
1.1	7	31	35	31	7	1.1
0.5	1.3	64	89	62	1.1	0.5
0.6	0.4					0.2
1.3	1.3					0.4
6	21	142		154	20	6
12	36	54		56	37	12
16	21	26		27	22	16
11	13	15		15	14	11
8	9	9		10	9	8
6	6	7	6	7	6	6
5	5	5	4	5	5	5

Distance Scale: Each square 0.5m x 0.5m

* Passengers on an international flight are exposed to an increase in radiation from elevated levels of cosmic radiation at higher altitudes. This table shows the equivalent hours flying compared to an unshielded person being in the room for one Chest CT.
(Based on 5 uSv/hr while flying).

Chest CT's Per Year to Exceed 1 mSv Public Limit if Standing behind 0.5 mm Lead shielding

1402	236	158	150	161	239	974
2597	387	91	82	92	438	2597
5394	2262	44	32	46	2697	5843
5008	7791					11686
2191	2262					6374
452	137	20		19	142	471
230	79	53		51	77	235
180	135	108		106	132	182
251	214	193		187	211	252
351	317	308		295	306	352
464	444	433	480	425	441	480
599	594	594	649	589	589	621

Distance Scale: Each square 0.5m x 0.5m

Important Notes

1) Only stay in the scan room if it is necessary

2) If necessary to stay in the CT scan room then:

- Use a mobile/freestanding lead shield to ensure that the staff member is adequately protected.
- Use the thickest lead shielding available. The lead thickness should be 0.5 mm or greater.
- Either side of the CT (Green Zone) is normally the best location to stand. If not practical to stand there, then move to the furthest distance from the CT donut.
- Seek local Medical Physics radiation protection advice based on your room layout & model of CT scanner

This infographic is based on estimates of x-ray scatter for the Siemens Somatom Flash performing a Chest CT at a DLP of 300 mGy.cm. The scatter levels will increase or decrease as the DLP of the scanner increases or decreases. Please seek Medical Physics advice if DLP values are significantly above this.

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