	Exposure to varying levels of	effective for every condition
	radiation could result in skin	or individual patient in
	burns and organ damage	treating specific types of
	while prolonged exposure at	cancer or targeting certain
	levels could increase the risk	areas of the body. Adverse
	of developing cancer. One	effects like skin irritation,
	drawback of ionizing radiation	itching and discomfort can
	is its nature, which may limit	occur in some patients
	access for individuals living in	exposed to ionizing radiation
	regions or facing constraints.	leading to potential health
		complications such as
	The use of radiation, in	autoimmune issues,
	treatment can provide	hypersensitivity reactions or
	benefits.	allergies. The high costs
	The success of the treatment	associated with ionizing
	depends on the patient and	radiation equipment and
	the specific kind of cancer	procedures could also limit its
	being addressed. Furthermore	availability in certain
	therapies, like chemotherapy	healthcare settings.
	can lead to side effects such	Moreover, ethical
	as hair loss, feelings of	considerations may alize
	sickness and vomiting.	regarding the Use of ionizing
		rectation on patients or, in
	Various consideration react	specific circumstances.
	to be made when deciding	17
	whether ionizing radiation is	
ioN	appropriate in a tuations. For	
previet	instance foldren and	
PIO	expectant mothers may face	
	risks from exposure.	
	The access to ionizing	
	radiation therapy varies across	
	healthcare centres which can	
	nose obstacles for natients in	
	need of this form of	
	treatment	
	treatment.	

A patient experiences pain during her cancer treatment. A dose of 6 mSV was given to her lungs, 4 mSv to her stomach, 4 mSv to her thyroid, and 2 mSv to the other tissues. (0.12x6) +(0.12x4) +(0.04x4) +(0.12x2) =1.8 grey

A patient feels uncomfortable during brain scan. A dose of 10mSV was given to his brain, 6mSV to his thyroid and 2mSV to his other tissues.

(0.01x10) +(0.04x6) +(0.12x2) =0.58 grey

X Ray Case study 1:

What happened:

Year than a hundred instances were reported where patients were mistakenly administered incorrect doses of radiation during radiological tests, at hospitals in the UK. A significant portion of these cases occurred because hospital staff directed the individual for scanning often stemming from doctors incorrectly labelling patient identification stickers on x ray requests. There were also situations where patients underwent scans on the body parts and numerous incidents of patients receiving radiation doses due to human errors. Additionally, there were mishaps in radiotherapy and nuclear medicine treatments or planning processes that led to mistakes. These errors had consequences for patients highlighting the need for identification protocols enhanced training programs and clearer instructions, for healthcare professionals.

Prevention:

Hospitals can take steps to prevent incidents, in the future. These include setting up incident reporting systems to identify and analyse errors and adverse events as well as implementing corrective measures promptly. It is essential to establish protocols for identification especially in radiological procedures with clear instructions and training for staff members. Regular training should be provided, focusing on error prevention communication skills, teamwork and overall quality improvement. Creating a culture of transparency and roen communication is crucial where staff are encouraged to report errors and reagoment takes actions seriously. Quality control mechanisms should be implace to ensure adherence to procedures and processes while seeking input from Exercise and families for improvement in areas, like communication, such and quality of care.

Case study 2: What happened

A receive animation of X ray esuft, a hospitals in Portsmouth, UK revealed 27 instances where cancers were missed leading to harm for three patients and the unfortunate deaths of two others. The investigation highlighted that the radiology department at the hospital had ceased having radiologists review X rays due to a backlog in workload. This decision was made to prioritize tasks over expert evaluations of X rays. As a result, healthcare providers in the radiology department evaluated the consequences of not reporting findings. Determined that the risk, to patients was minimal.

Fro

Prevention:

Ensuring a Quality Management System to establish that procedures and processes are consistently followed, which includes conducting audits and providing feedback. Offering training and education to employees in high-risk areas where diagnostic errors may occur to enhance their knowledge and skills. Fostering a culture of communication and feedback where team members are motivated to report errors and incidents with management taking matters seriously and implementing corrective measures. Supporting the adoption of technology and equipment, like imaging systems and AI driven solutions for image processing and analysis. Implementing real time monitoring and assessment to pinpoint areas, for enhancing patient care quality and making data informed decisions to improve patient outcomes.