

الآية الكريمة  
قال تعالى:  
(قل اعملوا فسيرى الله عملكم  
ورسوله والمؤمنون )  
صدق الله العظيم

## **Dedication**

I would like to dedicate  
the benefits of this  
research to my mother,  
to my father God bless  
them, to my family for  
their support,  
encouragement &  
assistance and to all  
those who supported  
me with love, and to  
my teachers who  
always supported me

## **Acknowledgement**

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### **List of Abbreviation**

Nuclear medicine	<b>NM</b>
Seivert	<b>Sv</b>
High level waste	<b>HLW</b>
Low level waste	<b>LLW</b>
Decay in storage	<b>DIS</b>
International commission radiation protection	<b>ICRP</b>
National Council on Radiation Protection and Measurements	<b>NCRP</b>
International commission on radiation units and measurement	<b>ICRU</b>
Half life	<b>HL</b>
Tenth value thickness	<b>TVT</b>
As low as reasonable achievable	<b>ALARA</b>
The International Atomic Energy Agency	<b>IAEA</b>
Radiation safety officer	<b>RSO</b>
Half value layer	<b>HVL</b>
The united nations scientific Committee on	<b>UNSCEAR</b>

the Effects of Atomic radiation	
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## **Abstract**

Many studies have shown that the vulnerability of nuclear medicine technologists to radiation is evident from the radioactive waste. We in this study have drawn upon the existing activities in the nuclear medicine department at the centre of Elnilain for medical diagnosis, where continued study for more than 8 days, and the purpose of this study was to estimate the level of the dose to technologist , nurses and other persons who were present in the hot lab from the Department of Nuclear Medicine during the elution process of the generator of TC-99m, and then compare the results of the dose that subjected them to the standards of the International Radiation Protection (ICRP). In this study, using of survey meter type (Victoreen 451) to measure doses of radiation, and of which we found that the cumulative dose of the hands of technologist approximately 9.4 mSv per year and this dose is less than the limits of dose permitted 500 mSv per year, also found that the dose to technologist 3.6 mSv per year and this is also less than the dose limit with 20 mSv per year, and the dose to the nurse was 1 mSv per year, less than allowed by 20 mSv, the patient also we found that it is exposed to dose of 0.8 mSv and this value concern near to the



allowed 1 mSv the non-working people(public). And the co- patient exposed to a dose of 0.3 mSv, and this value is less than the allowable limit 1 mSv for public.

### الخلاصة

كثير من الدراساتِ بَيَّنَتْ بأنَّ تعرُّضَ تقنيي الطب النووي للإشعاع يَظهرُ جلياً من الفضلات المُشعَّة. ونحن في هذه الدراسة استندنا إلى النشاطات الموجودة في قسم الطب النووي في مركز النيلين لتشخيص الطبي حيث استمرت الدراسة لأكثر من 8 يوم، وكان الغرض من هذه الدراسة تقدير مستوى الجرعة التي يتعرض لها التقنيين والممرضين والأشخاص الآخرين الذي كانا متواجدين في المختبر الحار من قسم الطب النووي أثناء عملية الاستحلاب لمولد التكنشيوم 99م، وبعد ذلك تقارن نتائج الجرعة التي يتعرضوا لها مع المعايير الدولية للوقاية من الإشعاع (ICRP)

استخدم في هذه الدراسة ماسح أشعاعي لقياس الجرعات الإشعاعية نوع (Victoreen 451)، ومنها وجدنا أن جرعة الإشعاع التي تتعرض لها يد التقني تقريبا 9.4 ملي سيفرت سنويا وهذه الجرعة تعتبر اقل من حدود الجرعة المسموح 500ملي سيفرت سنويا، كذلك وجدنا أن الجرعة التي يتعرض لها التقني 3.6 ملي سيفرت سنويا وهذه أيضا اقل من الجرعة المسموح بها 20 ملي سيفرت سنويا ، والجرعة التي يتعرض لها الممرض كانت 1ملي سيفرت سنويا وهي اقل من المسموح بها 20 ملي سيفرت ، والمريض ايضا وجدنا انه يتعرض لجرعة 0.8 ملي سيفرت وهذه اقرب قيمه الى المسموح بها 1 ملي

سيفرت للأشخاص غير العاملين. والمرافق للمريض يتعرض الى جرعه مقدارها 0.3ملي سيفرت وهذه القيمة أقل من الحد المسموح به 1 ملي سيفرت ...

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