

# Awareness of Forensic Medicine Services Staff in Hail with Appropriate Infection Control Practices

Musleh SamilReshidi<sup>1</sup>, Abdulah Saadi Algarni<sup>2</sup>, Mohammed Hamdan Alshammari<sup>3</sup>,  
Mohammad AYED Alreshidi<sup>4</sup>, Mubarak Saad Alshammari<sup>5</sup>, Naif Sulaiman Alenezi<sup>6</sup>,  
Ahmed Mahal Alreshidi<sup>7</sup>, Mamdouh Awad Alonezi<sup>8</sup>, Mohammed Fayed ALReshidi<sup>9</sup>

1. Forensic Medical Services centre-Hail , Hail Health, Hail, Saudi Arabia
2. Forensic Medical Services centre-Hail , Hail Health, Hail, Saudi Arabia
3. Forensic Medical Services centre-Hail , Hail Health, Hail, Saudi Arabia
4. Forensic Medical Services centre-Hail , Hail Health, Hail, Saudi Arabia
5. Forensic Medical Services centre-Hail , Hail Health, Hail, Saudi Arabia
6. Forensic Medical Services centre-Hail , Hail Health, Hail, Saudi Arabia
7. Forensic Medical Services centre-Hail , Hail Health, Hail, Saudi Arabia
8. Forensic Medical Services centre-Hail , Hail Health, Hail, Saudi Arabia
9. Hail Health, Hail, Saudi Arabia

**Corresponding author:** Musleh Samil Reshidi, Forensic Medical Services, Hail Health, Hail, Saudi Arabia

## Abstract

The study evaluates infection control awareness and practices among forensic medical staff in Hail. Key findings include:

Forensic staff generally have a strong awareness of the importance of infection control practices and recognize the challenges they face. Despite this awareness, there are inconsistencies in adhering to infection control measures, such as personal protective equipment (PPE) usage and sterilization protocols. The study highlights the need for ongoing efforts to enhance infection control practices, including strengthening training programs and improving resource availability.

Recommendations from the study include: Strengthening training programs to address identified gaps in knowledge and practice. Ensuring clearer and more comprehensive infection control guidelines.

Improving the consistency of resource availability and application. The study's insights are crucial for informing policy and practice improvements in forensic medical settings, ultimately contributing to safeguarding both forensic medical professionals and the broader community by ensuring adherence to robust infection control standards.

**Keywords:** Forensic Medicine; Infection Control; Medicine; Forensic; Awareness; Hail Region.

## Abbreviations

PPE	:	Personal Protective Equipment
CPHIMS	:	World Health Organization
ICT	:	Centers for Disease Control and Prevention

The study provides a comprehensive evaluation of infection control awareness, implementation, and attitudes among forensic medical staff in Hail. Given the high-risk nature of forensic work, which frequently involves exposure to biological hazards and infectious materials, adherence to strict infection control measures is essential. The findings reveal a generally strong awareness and agreement on the importance of infection control practices among forensic staff. This is reflected in their recognition of the challenges faced and the value they place on formal training and adherence to protocols.

However, the study also highlights some areas needing improvement. Despite a high level of agreement on the necessity of infection control measures and their implementation, there are inconsistencies in practice adherence and understanding of certain infection control measures. For instance, while personal protective equipment (PPE) usage and sterilization protocols are generally well-regarded and applied, the responses indicate variability in their routine application and the overall understanding of infection control guidelines.

These findings underscore the need for ongoing efforts to enhance infection control practices within forensic medicine. Recommendations include strengthening training programs to address identified gaps, ensuring clearer and more comprehensive infection control guidelines, and improving the consistency of resource availability and

application. Addressing these areas will help bridge the gap between theoretical knowledge and practical implementation, ensuring that forensic medical staff in Hail can better manage the risks associated with their work.

The study's insights are crucial for informing policy and practice improvements in forensic medical settings. By identifying current strengths and weaknesses, the research provides a foundation for developing targeted interventions that will enhance safety and efficacy in forensic medicine. Ultimately, this research contributes to safeguarding both forensic medical professionals and the broader community by ensuring adherence to robust infection control standards, aligned with both national and international guidelines.

**Keywords:** Forensic Medicine; Infection Control; Medicine; Forensic; Awareness; Hail Region.

### Abbreviations

PPE	:	Personal Protective Equipment
CPHIMS	:	World Health Organization
ICT	:	Centers for Disease Control and Prevention

### Introduction

The subject is about infection control in forensic medicine, specifically in Hail, Saudi Arabia. Forensic medical staff, including pathologists, nurses, and technicians, are at high risk of exposure to biological hazards and infectious materials during autopsies, crime scene investigations, and handling of cadavers [1].

The study aims to assess the current state of infection control awareness among forensic medical staff in Hail, evaluate their knowledge, attitudes, and practices, and identify areas of strength and weakness.[2,3].

The research problem highlights the limited understanding of the current level of awareness and adherence to infection control practices among forensic medical staff in Hail.[4]. The study seeks to investigate the extent of awareness and adherence to infection control protocols, identify gaps in infection control practices, and provide recommendations to enhance safety and compliance.[5].

### The research questions include:

1. What is the current level of awareness among forensic medical staff in Hail regarding infection control practices?
2. To what extent are infection control practices implemented by forensic medical staff in Hail?
3. What are the attitudes of forensic medical staff in Hail towards the importance of infection control in their daily work?
4. What factors influence adherence or non-adherence to infection control protocols among forensic medical staff in Hail?

### The research objectives are to:

1. Assess the level of awareness of forensic medical staff in Hail regarding infection control practices.
2. Evaluate the implementation of infection control practices among forensic medical staff in Hail.
3. Examine the attitudes of forensic medical staff towards infection control and its significance in their work environment.
4. Identify the factors that influence compliance or non-compliance with infection control protocols.
5. Determine the gaps in training, resources, and institutional support that may hinder effective infection control practices among forensic medical staff in Hail.

The study is important because it addresses a critical aspect of healthcare and public safety-infection control within forensic medicine. Inadequate infection control in this field can lead to the spread of dangerous infections, compromising the safety of both healthcare workers and the community at large.

### Research Importance

This study holds significant importance as it addresses a critical aspect of healthcare and public safety-infection control within forensic medicine. Forensic medical staff, due to the nature of their work, face elevated risks of exposure to infectious diseases through contact with biological hazards, including blood borne pathogens and airborne infections. The implications of inadequate infection control in this field extend beyond the individual workers to the community at large, as breaches in safety protocols can lead to the spread of dangerous infections.

## **Research Limitations**

The study focused on assessing Awareness of forensic medicine services staff in hail with appropriate infection control practices from the period of 2024 to 2025 in Hail Region in KSA.

## **Theoretical framework and previous studies**

### **Research definitions**

**Forensic Medical Staff:** Forensic medical staff include professionals involved in forensic investigations, such as forensic pathologists, forensic nurses, forensic technicians, and other healthcare workers who participate in the examination and analysis of human remains and crime scene evidence[6].

**Infection Control:** Infection control refers to the policies, procedures, and practices employed in healthcare settings to prevent the transmission of infectious agents. In forensic medicine, infection control practices aim to protect medical staff and the public from exposure to pathogens during autopsies, crime scene investigations, and the handling of biological materials[7].

### **Literature review:**

#### **Infection Control in Forensic Medicine**

##### **General Principles**

Infection control practices in forensic medicine are crucial due to the potential exposure to infectious agents during forensic investigations and autopsies. The following provides an overview of key infection control practices specific to forensic medicine[8].

##### **Personal Protective Equipment (PPE)**

In forensic medicine, the use of personal protective equipment (PPE) is essential to minimize the risk of exposure to infectious agents. Gloves are fundamental in protecting hands from direct contact with bodily fluids and other potential contaminants. They should be used during all procedures and examinations where exposure to biological materials is possible. Gowns or lab coats provide additional protection, covering the body and preventing contamination of personal clothing. Face shields or masks are critical for protecting the face and respiratory tract from splashes and airborne pathogens. In high-risk situations, such as those involving aerosol-generating procedures, N95 respirators are recommended due to their higher efficiency in filtering airborne particles. Eye protection, such as goggles, should also be worn to guard against accidental splashes and contamination. Proper use of PPE, including correct donning and doffing techniques, is crucial to prevent self-contamination and ensure the safety of forensic professionals[9].

##### **Hand Hygiene**

Hand hygiene is a cornerstone of infection control in forensic settings. Forensic medical staff must wash their hands thoroughly with soap and water both before and after patient contact and after removing gloves. This practice helps to remove any contaminants that may have been transferred during procedures. When soap and water are not available, an alcohol-based hand sanitizer can be used as an alternative, provided the hands are visibly clean. Regular reinforcement of hand hygiene practices through training and continuous monitoring is necessary to maintain high standards of cleanliness and prevent the spread of infections within forensic settings [10].

##### **Sterilization and Disinfection**

Effective sterilization and disinfection are critical in maintaining a safe forensic environment. Reusable instruments and tools must be sterilized to eliminate all microorganisms, including spores. Autoclaving is the preferred method for this process, using steam under pressure to achieve complete sterilization. For items that cannot withstand high temperatures, chemical sterilant such as ethylene oxide or hydrogen peroxide vapor are utilized. Additionally, surfaces that have come into contact with bodily fluids require routine disinfection. Appropriate disinfectants should be chosen based on their efficacy against a broad spectrum of pathogens. Implementing regular cleaning protocols helps ensure that all surfaces and equipment remain free of potential contaminants, thus enhancing overall safety in forensic practice[11].

##### **Importance and Challenges**

In forensic medicine, infection control is paramount due to the heightened risk of exposure to various biological hazards. Forensic professionals, such as forensic pathologists and crime scene investigators, are routinely exposed to potentially infectious materials during activities like autopsies and crime scene examinations. This exposure presents

significant health risks, including blood borne pathogens (such as HIV, hepatitis B, and hepatitis C) and air-borne infections (such as tuberculosis). The nature of forensic work, involving direct contact with bodily fluids and other potentially contaminated materials, necessitates robust infection control measures to protect both practitioners and the broader public [12,13].

The unique challenges faced in forensic settings include:

**Diverse Biological Hazards:** Forensic professionals encounter a wide range of biological hazards, each requiring specific control measures. For instance, handling decomposed bodies or samples from suspected infectious cases demands specialized protocols.

**Varied Work Environments:** Forensic work occurs in diverse environments, including morgues, crime scenes, and laboratories. Each setting presents different infection control challenges, from maintaining sterility in a morgue to managing environmental contamination at a crime scene.

**Complex Cases:** Cases often involve multiple pathogens or unknown contaminants, complicating infection control efforts. Forensic professionals must be prepared to adapt their practices to the specific risks associated with each case.

**Resource Limitations:** Some forensic facilities may lack the necessary resources or equipment to fully implement infection control protocols. This can result in gaps in protective measures and increased risk of exposure.

**Training and Compliance:** Ensuring that all personnel are adequately trained and consistently adhere to infection control protocols is an ongoing challenge. Continuous education and reinforcement of practices are necessary to maintain high standards of safety [12,13].

### **Guidelines and Best Practices**

Global health organizations like the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have established comprehensive guidelines for infection control in forensic medicine. Key recommendations include:

**Use of Personal Protective Equipment (PPE):** Proper PPE, such as gloves, masks, gowns, and eye protection, is crucial to minimize exposure to infectious agents. The selection of PPE should be tailored to specific risks associated with each forensic procedure [2, 14].

**Sterilization and Disinfection:** Regular sterilization or disinfection of instruments and surfaces is necessary to prevent cross-contamination. Effective methods, such as autoclaving or chemical disinfection, should be employed based on the equipment type and contamination level.

**Safe Handling and Disposal:** Protocols for handling and disposing of hazardous materials, including biological specimens and contaminated waste, are essential. This involves using biohazard containers and adhering to local waste management regulations.

**Training and Protocols:** Regular training for forensic personnel on infection control practices is vital. This training should cover PPE use, decontamination procedures, and emergency response protocols.

**Monitoring and Evaluation:** Ongoing monitoring and evaluation of infection control practices help identify areas for improvement. Regular audits and feedback mechanisms ensure adherence to guidelines and facilitate necessary adjustments [15].

By following these guidelines, forensic professionals can significantly reduce infection risks and enhance safety in their work environments.

### **Methodology**

**Research Design:** The research design is a comprehensive plan that integrates all parts of the study logically. It serves as a guide for gathering, measuring, and analyzing data, ensuring the research challenge is effectively addressed. According to Kumar (2018), research designs can be categorized into exploratory, descriptive, and explanatory strategies, each tailored to specific study objectives.

**Descriptive Research:** Aims to provide a detailed account of a situation, person, or event, showing how phenomena relate and occur naturally. While it cannot explain causality, descriptive research is beneficial in emerging study areas.

Exploratory Research: Conducted when limited information exists about a topic. Its purpose is to delve deeper into subjects without addressing all raised questions. Exploratory studies are crucial for defining the main study's initial research plan and data collection strategy.

Quantitative Research: Involves collecting data using sampling techniques, surveys, and questionnaires, with results often presented numerically. This approach anticipates future trends based on data analysis.

### **Sample Population**

The term "population" refers to the group of people or things that the researcher believes to contain the necessary facts and particular hints. Any group of things, including living things and inanimate objects, that share an interesting quality is called a population. According to Bujang et al. (2018), academics are unable to reach out to all members of the target community because of the resource's financial, time, and goal limits.

The purpose of sampling is to select a representative subset of a population in order to provide data on that subset's characteristics. Modern research employs a wide range of techniques to better gauge the interest group (the target audience) and obtain reliable data from them.

The questionnaire was prepared, where the study sample was 100 Forensic medical staff working in Hail, including forensic pathologists, medical examiners, and other relevant personnel.

### **Sample Types**

Sampling is a technique for selecting a representative sample from a larger population in order to draw conclusions about that group's characteristics. Modern research employs a wide range of techniques to better gauge the interest group (the target audience) and obtain reliable data from them.

Assigning participants to a sampling group at random is known as randomization or distribution. It is essential to make this basic assumption while analyzing statistical data. Statistical power, control for selection bias, and control for allocation bias (or confounding) can all be enhanced by randomization, which is particularly useful in subgroup research. In addition, it helps ensure that all traits, whether quantifiable or not, visible or invisible, known or unknown, are distributed evenly among all classes. Researchers use a variety of randomization procedures according to the research aim and findings.

Using simple random sampling, every member of the population has an equal chance of being selected for a survey. This technique is employed when the sample frame is accessible, the population is little, and there is a high degree of homogeneity. For example, a computer that is mechanically created, a table of random numbers, and the lottery system.

The study employed a system of random sampling. This technique includes at least two strata or subgroups in its subject selection process in order to ensure that the sample is representative of the population as a whole. There is an appropriate sample frame that can be used to determine the stratified features of the target research population, and stratified random sampling helps to decrease sampling errors. Therefore, stratified random sampling was chosen.

### **Data Collection**

Data collection involves gathering and evaluating data on relevant variables to form and test hypotheses, answer research questions, and analyze results. It is a vital tool across various academic fields, ensuring that sufficient detail is amassed for thorough analysis, which is essential for maintaining the credibility of scientific findings. Accurate data collection minimizes errors when appropriate instruments are used.

### **Primary Data**

Primary data is information obtained directly from subjects through methods like interviews, questionnaires, and observations. It is crucial when secondary sources are insufficient. A well-designed questionnaire, as noted by Leedy (2015), should be clear, concise, and logically organized, with a progression from easy to difficult questions. In this study, primary data was collected mainly through questionnaires sent to participants.

### **Secondary Data**

Secondary data helps researchers better understand problems, formulate hypotheses, and establish a foundation for further research. It accelerates the analysis of primary data by providing context through literature and archival reviews. According to Andrew (2019), secondary sources include previously published books and articles.

**Data Analysis**

Data analysis involves organizing and interpreting information from various sources, aiming to uncover generalizable assertions. Marshall (2014) describes it as a creative and non-linear process that requires logical reasoning. After cleaning the questionnaire responses, data were analyzed using SPSS, with results summarized in frequency distribution tables and visualized through charts.

**Reliability and Validity of the Research**

Ensuring reliability and validity is crucial for comprehensive research.

**Validity**

Validity pertains to the relevance and accuracy of the information in measuring the intended phenomena. Clarity in presenting findings strengthens validity, particularly in social sciences where qualitative studies can complicate this assessment. The reliability of the methodology directly impacts validity.

**Reliability**

Reliability refers to the consistency and accuracy of results, including aspects like test-retest reliability and internal consistency. Ensuring reliable study results involves using a structured approach in data collection. Overall, reliability is assessed by examining the consistency and stability of the measurements made.1.

**Data Analysis and Results:**

**Demographic Questions:**

**Gender:**

It is clear from the following table on the distribution of the study sample by gender that the proportion of males is 90%, and females 10%.(Table 1, Figure 1)

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	90	90.0	90.0	90.0
	Female	10	10.0	10.0	10.0
	Total	100	100.0	100.0	

Table 1: Gender

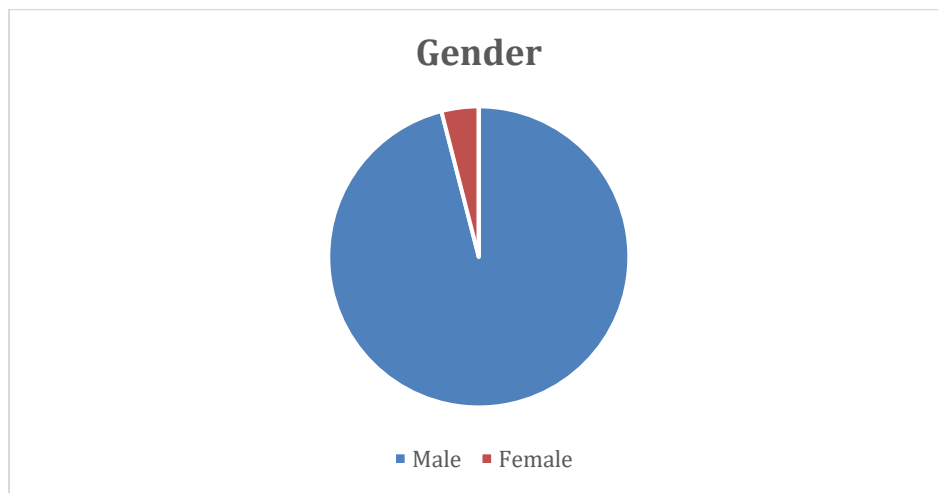


Figure 1: Gender

### Nationality

It is clear from the following table on the distribution of the study sample by Nationality that the proportion of Saudi is 92 %, and non-Saudi 8%.(Table 2, Figure 2)

Nationality		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saudi	92	92.0	92.0	64.0
	Non- Saudi	8	8.0	8.0	100.0
	Total	100	100.0	100.0	

Table 2: Nationality

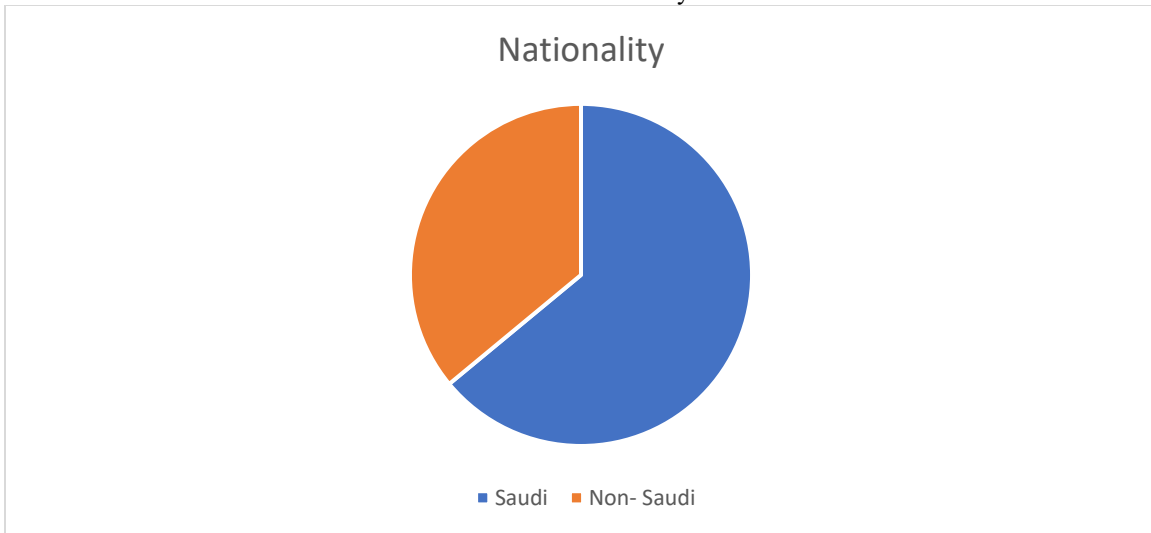


Figure 2: Nationality

### Age

It is evident from the following table regarding the distribution of the study sample according to age, that the highest percentage is (36-40 years) with 40%, followed by (31-35 years) with a percentage of 21%, (26-30 years) with a percentage of 20% (More than 40 years) with a percentage of 11% and (21- 25 years) with a percentage of 8%.(Table 3, Figure 3)

Age		Frequency	Percent	Valid Percent	Cumulative
Valid	21- 25 years	8	8	8	8
	26-30 years	20	20	20	28
	31-35 years	21	21	21	49
	36-40 years	40	40	40	89
	More than 40 years	11	11	11	100
	Total	100	100.0	100.0	

Table 3: Age

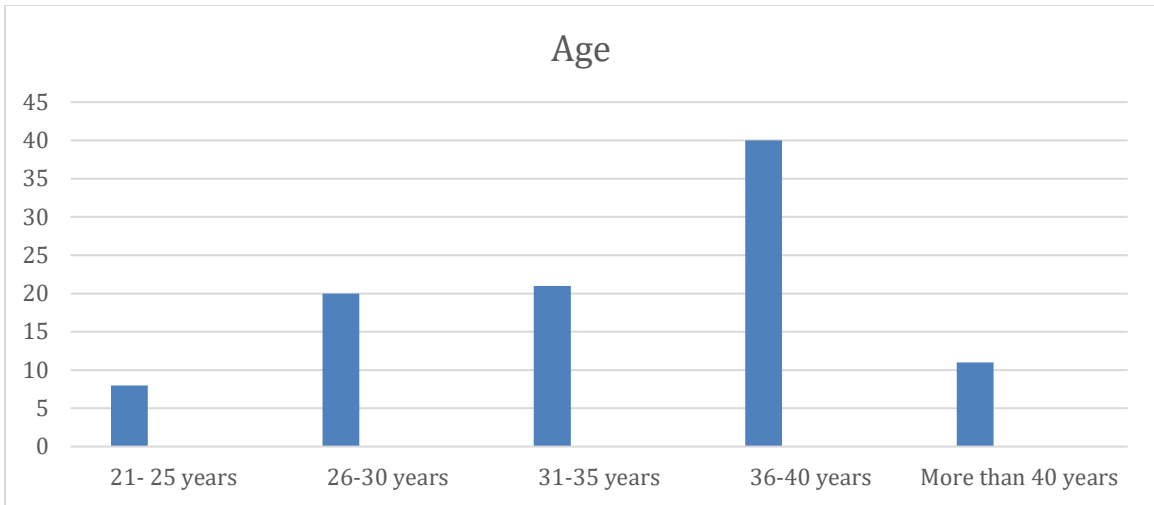


Figure 3: Age

**Working status**

It is evident from the following table regarding the distribution of the study sample according to Working status, that the highest percentage is (Doctors) with 38%, followed by (Pharmasists) with a percentage of 22%, (Laboratory Technicians) with a percentage of 19% (Staff Nurses) with a percentage of 16% and (House Keeping Staff) with a percentage of 5%.(Table 4, Figure 4)

Working status					
		Frequency	Percent	Valid Percent	Cumulative
Valid	Doctors	38	38	38	38
	Pharmacists	22	22	22	60
	Staff Nurses	16	16	16	76
	Laboratory Technicians	19	19	19	95
	House Keeping Staff	5	5	5	100
	Total	100	100.0	100.0	

Table 4: Working status

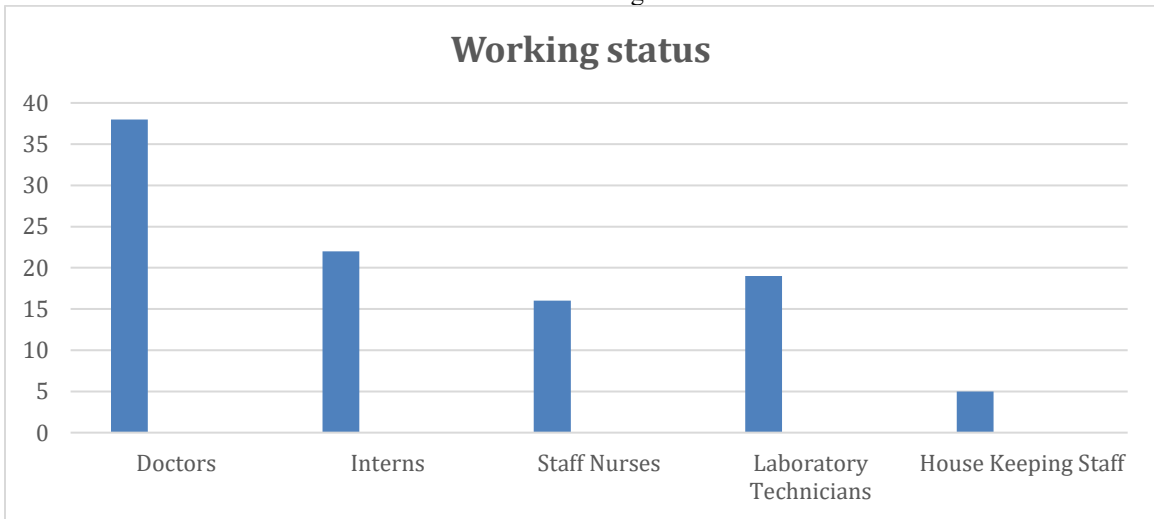


Figure 4: Working status

### Working experience

It is evident from the following table regarding the distribution of the study sample according to Working status, that the highest percentage is (6-10 years) with 40%, followed by (More than 10 years) with a percentage of 35%, (Less than 1 year) with a percentage of 13% and (1-5 years) with a percentage of 12%. (Table 5-13, Figure 5)

Working experience		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	13	13	13	13
	1-5 years	12	12	12	25
	6-10 years	40	40	40	65
	More than 10 years	35	35	35	100
	Total	100	100.0	100.0	

Table 5: Working experience



Figure 5: Working experience

The current level of awareness among forensic medical staff in Hail regarding infection control practices: The study sample's responses indicate that significant challenges are encountered in adhering to infection control practices, formal training in infection control practices specific to forensic medicine is regularly provided, and infection control practices are consistently adhered to during forensic examinations. A range of infection control measures, including personal protective equipment, hand hygiene, and safe specimen handling, is well-understood, and there is a high level of awareness regarding standard infection control protocols relevant to the field of forensic medicine.

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	p-value
There is a high level of awareness regarding standard infection control protocols relevant to the field of forensic medicine	100	3	5	3.87	.812	0.001
Infection control practices are consistently adhered to during forensic examinations	100	3	5	4.15	.687	0.001
Formal training in infection control practices specific to forensic medicine is regularly provided	100	2	5	4.21	.832	0.320
A range of infection control measures, including personal protective equipment, hand hygiene, and safe specimen handling, is well-understood	100	3	5	3.89	.751	0.121
Significant challenges are encountered in adhering to infection control practices	100	3	5	4.22	.675	0.603
the current level of awareness among forensic medical staff in Hail regarding infection control practices	100	3.00	4.60	4.0680	.36979	
Valid N (listwise)	100					

Table 6: Descriptive Statistics of the current level of awareness among forensic medical staff in Hail regarding infection

S	Strongly disagree		Not agree		Neutral		Agree		Strongly Agree	
	F	%	F	%	F	%	F	%	F	%
There is a high level of awareness	-	-	-	-	40	40%	33	33%	27	27%
Infection control practices are	-	-	-	-	17	17%	51	51%	32	32%
Formal training in infection control	-	-	2	2%	20	20%	33	33%	45	45%
A range of infection control	-	-	-	-	34	34%	43	43%	23	23%
Significant challenges are	-	-	-	-	14	14%	50	50%	36	36%

Table 7: The current level of awareness among forensic medical staff in Hail regarding infection control practices. Extent are infection control practices, such as the use of personal protective equipment and proper sterilization, implemented by forensic staff in Hail

The study sample's responses were categorized into five statements: consistent use of personal protective equipment (PPE), high compliance with infection control practices, strict adherence to sterilization protocols, routine use of PPE, and regular follow-up of proper sterilization procedures. The responses were based on an arithmetic mean of 4.21 and a standard deviation of .902, with a neutral direction for the fifth statement. The results suggest that PPE usage and sterilization procedures are essential for maintaining a sterile environment.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
The use of personal protective equipment (PPE) is consistently applied during forensic examinations	100	2	5	4.21	.902
Proper sterilization procedures are regularly followed to prevent infection	100	1	5	4.00	.888
Personal protective equipment, including gloves, masks, and gowns, is routinely utilized	100	3	5	4.09	.818
Sterilization protocols are strictly adhered to in order to maintain a sterile environment	100	3	5	4.13	.812
There is a high level of compliance with infection control practices, such as PPE usage and proper sterilization	100	2	5	4.13	.884
extent are infection control practices, such as the use of personal protective equipment and proper sterilization, implemented by forensic staff in Hail	100	3.00	5.00	4.1120	.48017
Valid N (listwise)	100				

Table 8: Descriptive Statistics of extent are infection control practices, such as the use of personal protective equipment and proper sterilization, implemented by forensic staff in Hail.

S	Strongly disagree		not agree		Neutral		Agree		Strongly Agree	
	F	%	F	%	F	%	F	%	F	%
The use of personal protective	-	-	3	3%	23	23%	24	24%	50	50%

equipment (PPE) is consistently applied during forensic examinations										
Proper sterilization procedures are regularly followed to prevent infection	2	2%	2	2%	21	21%	44	44%	31	31%
Personal protective equipment, including gloves, masks, and gowns, is routinely utilized	-	-	-	-	29	29%	33	33%	38	38%
Sterilization protocols are strictly adhered to in order to maintain a sterile environment	-	-	-	-	27	27%	33	33%	40	40%
There is a high level of compliance with infection control practices, such as PPE usage and proper sterilization	-	-	3	3%	24	24%	30	30%	43	43%

Table 9: Extent are infection control practices, such as the use of personal protective equipment and proper sterilization, implemented by forensic staff in Hail

The attitudes of forensic staff in Hail toward the importance of infection control in their daily work

The study sample's responses to the statement "The necessity of adhering to infection control guidelines is widely acknowledged and supported in daily forensic activities" and "Infection control procedures are seen as essential to upholding professional standards in forensic work" were all in agreement. The statement "The importance of infection control in daily forensic work is highly valued" was also in agreement. The statement "There is a strong belief in the effectiveness of infection control measures in preventing the spread of infections" was neutral.

Descriptive Statistics							p-value
	N	Minimum	Maximum	Mean	Std. Deviation		
The importance of infection control in daily forensic work is highly valued.	100	2	5	4.09	.911	0.292	
Infection control practices are considered crucial for maintaining safety during forensic examinations.	100	2	5	3.95	.880		
There is a strong belief in the effectiveness of infection control measures in preventing the spread of infections.	100	2	5	4.07	.820	0.035	
Infection control procedures are seen as essential to upholding professional standards in forensic work.	100	3	5	4.12	.844	0.009	
The necessity of adhering to infection control guidelines is widely acknowledged and supported in daily forensic activities.	100	3	5	4.24	.712	-	
the attitudes of forensic staff in Hail toward the importance of infection control in their daily work	100	2.50	5.00	4.0575	.51720		
Valid N (listwise)	100						

Table 10: Descriptive Statistics of the attitudes of forensic staff in Hail toward the importance of infection control in their daily work

S	Strongly disagree		Not agree		Neutral		Agree		Strongly Agree	
	F	%	F	%	F	%	F	%	F	%
The importance of infection control in daily forensic work is highly valued.	-	-	5	5%	22	22%	32	32%	41	41%
Infection control practices are considered crucial for maintaining safety during forensic examinations.	-	-	2	2%	35	35%	29	29%	34	34%
There is a strong belief in the effectiveness of infection control measures in preventing the spread of infections.	-	-	2	2%	24	24%	39	39%	35	35%
Infection control procedures are seen as essential to upholding professional standards in forensic work.	-	-	-	-	30	30%	28	28%	42	42%
The necessity of adhering to infection control guidelines is widely acknowledged and supported in daily forensic activities.	-	-	-	-	16	16%	44	44%	40	40%

Table 11: Frequency & Percent of the attitudes of forensic staff in Hail toward the importance of infection control in their daily work.

The factors influencing adherence or non-adherence to infection control protocols among forensic staff in Hail  
 The study sample's responses to the following questions were categorized into four groups: support from management and institutional policies, workload and time constraints during forensic examinations, clarity and comprehensiveness of infection control guidelines, and availability of resources like personal protective equipment and sterilization supplies. The results indicated that support from management and institutional policies significantly impacts adherence to infection control protocols.

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation		p-value
The availability of resources, such as personal protective equipment and sterilization supplies, significantly impacts adherence to infection control protocols.	100	3	4	3.84	.368		0.344
Workload and time constraints affect the adherence to infection control practices during forensic examinations.	100	1	5	4.07	1.112		-
The clarity and comprehensiveness of	100	3	5	4.03	.784		0.314

infection control guidelines play a role in whether protocols are consistently followed.						
Support from management and institutional policies impact the adherence to infection control protocols.	100	3	5	4.37	.747	0.013
Valid N (listwise)	100			4.07	0.443	

Table 12: Descriptive Statistics of the factors influencing adherence or non-adherence to infection control protocols among forensic staff in Hail

S	Strongly disagree		Not agree		Neutral		Agree		Strongly Agree	
	F	%	F	%	F	%	F	%	F	%
The availability of resources, such as personal protective equipment and sterilization supplies, significantly impacts adherence to infection control protocols.	-	-	-	-	16	16%	84	84%	-	-
Workload and time constraints affect the adherence to infection control practices during forensic examinations.	3	3%	7	7%	19	19%	22	22%	49	49%
The clarity and comprehensiveness of infection control guidelines play a role in whether protocols are consistently followed.	-	-	-	-	29	29%	39	39%	32	32%
Support from management and institutional policies impact the adherence to infection control protocols.	-	-	-	-	16	16%	31	31%	53	53%

Table 13: Frequency &Percent of the factors influencing adherence or non-adherence to infection control protocols among forensic staff in Hail

The study reveals that staff recognize the importance of infection control practices but face challenges in consistent implementation due to factors such as complex procedures, high workloads, and resource constraints. Staff commitment to safety protocols is slightly lower than training, suggesting a gap between theoretical knowledge and practical application. Staff awareness and understanding of infection control measures is neutral, suggesting varying levels of routine application. High agreement was noted for the use of personal protective equipment (PPE) and compliance with infection control practices, but lower scores for routine PPE usage and proper sterilization suggest

variability in adherence. Staff attitudes towards infection control practices are strong, but neutral responses regarding their critical nature during examinations indicate challenges in practical implementation. Factors influencing adherence include management support, workload impact, clear guidelines, and resource availability. Overall, staff attitudes towards infection control practices are influenced by various factors.

### Conclusion

The study reveals staff's commitment to infection control practices during forensic examinations, but also reveals challenges in consistent implementation due to complex procedures, high workloads, and resource constraints. Staff's understanding of infection control measures is neutral, suggesting varying levels of routine application. High agreement was noted for the use of personal protective equipment and compliance, but lower scores for routine PPE usage and proper sterilization suggest variability. Staff attitudes towards infection control are strong, but neutral responses indicate challenges in practical implementation. Factors influencing adherence include management support, workload impact, and guidelines clarity.

### References

1. Tan X (2020). The Development of an Optofluidic Biosensing Platform for Multi-Functional Biomolecular Analysis (Doctoral dissertation).
2. World Health Organization (WHO) (2022). Infection Prevention and Control in Healthcare Settings. Retrieved from WHO Infection Control Guidelines.
3. Baharuddin AS, Ahmad MH, Ismail WAF, et al. (2020). Offense of Spreading Infectious Disease and Methods of Proof Through Forensic Science. *INSLA E-Proceedings* 3: 340-350.
4. Sacco MA, Gualtieri S, Tarzia P, et al. (2024). The role of operative protocols for the prevention of occupational infectious risk on the crime scene. *La Clinica Tera* 175:187-191.
5. Barranco R, Vallega Bernucci Du Tremoul, L, Ventura F (2021). Hospital-acquired SARS-Cov-2 infections in patients: inevitable conditions or medical malpractice?. *Int J Environ Res Public Health* 8: 489.
6. Rakei S, Rad HI, Arbabisarjou A, et al. (2019). Effect of workshop education on knowledge of specialized assistants in Arak University of Medical Sciences about professional medical and forensic medicine laws. *Drug Invention Today*.
7. Posfay-Barbe KM, Zerr DM, Pittet D (2008). Infection control in paediatrics. *Lancet Infect Dis* 8 :19-31.
8. Vij K (2011). *Textbook of forensic medicine and toxicology: principles and practice*, 5/e. Elsevier India.
9. Tian Z, Stedman M, Whyte M, et al. (2020). Personal protective equipment (PPE) and infection among healthcare workers—What is the evidence?. *International journal of clinical practice*, 74(11), e13617.
10. Abdulhassan AF, Ali SA (2020). Hand Hygiene Practices and Infection Control Measures among Emergency Units Health Care Providers. *Indian Journal of Forensic Medicine & Toxicology*.
11. Mohapatra S (2017). Sterilization and disinfection. *Essentials of Neuroanesthesia*: 929–944.
12. Johnson T, Wright L (2020). Infection Control in Forensic Medicine: A Review of Practices and Protocols. *Journal of Forensic Sciences* 65: 452-459.
13. Garcia M, Lee R, Patel S (2018). Challenges in Forensic Medicine: Infection Control and Risk Management. *Forensic Science International* 287: 142-149.
14. Centers for Disease Control and Prevention (CDC)(2021). Infection Control Guidelines for Healthcare Settings. Retrieved from CDC Infection Control Guidelines
15. Smith J, Brown H, Davis A (2019). Adherence to Infection Control Protocols: A Study in Forensic Settings. *Journal of Clinical Microbiology* 57: 987-994.