



**KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING THE USAGE OF NEEDLE DESTROYERS IN GENERAL DENTAL PRACTICES**

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**ABSTRACT**

**Aim:** To survey knowledge, attitude and practice regarding the usage of needle destroyers in general dental practices.

**Background:** Needle destroyers are devices used electrically burn and cut needles. In developing countries, there is still a need for needle safety in hospital settings as most of the needle removal processes are done manually and under severe risk of needle stick injury. This lowers possible pathogen spread by preventing the reuse of the syringes, reducing incidents of accidental needle-sticks, and facilitating syringe disposal.

**Methodology:** A survey was taken among 70 dental practitioners of various specialities. The questionnaire was used to check the attitude of dentists and their opinion about the quality and efficiency of needle destroyers. The questionnaire was created using Survey planet, a survey-tool app.

**Conclusion:** About 65% surveyed were aware of needle destroyers but never used it. Among them 56% claimed to have gained knowledge regarding needle destroyers from friends or associates. Hence, there is need to create awareness regarding the usage of needle destroyers among the general Dental practitioners.

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**INTRODUCTION**

Needle destroyers are devices used to destroy disposable needles by cutting the syringe nozzle. The device has a cannula cutter and a hub that are joined at a slidable joint and pivoted at a non axial pivot point.<sup>[1][3][5]</sup>

Major composition of medical waste is are needles and hypodermic syringes. Safe disposal of such wastes is a challenging task.<sup>[2]</sup> Needle stick injuries are also a common incidence in the medical field. Estimates indicate that 600,000 to 800,000 such injuries occur annually, about half of which go unreported.<sup>[4]</sup> needlestick injuries have the ability to transmit bacteria, protozoa, viruses and prions<sup>[4]</sup>. Needle destroyers reduce the instances of accidental needle-sticks injuries because they allow immediate removal and containment of the needles, especially if the device is near the area of use. Reuse of syringes is prevented because the needle-remover physically separates the needle from the syringe, making the syringe useless. They also improve waste disposal by decreasing both the amount of infectious waste and the amount of safety boxes needed for the waste, since safety boxes can pack syringes 20-60% more compactly without the needles.

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This study aims to summarize the current state of knowledge, attitude and practice of needle destroyers among general dental surgeons and also create an awareness.

**MATERIALS AND METHODS**

A cross sectional survey was conducted among 70 dental practitioners in Chennai. The questionnaire was used to check the attitude of dentists and their opinion about the quality and efficiency of needle destroyers. The questionnaire was created by using a survey-tool app, Survey Planet (<https://app.surveyplanet.com/#>). The subjects were administered with a structured questionnaire consisting of questions on their knowledge, attitude and awareness of needle destroyers.

**Questionnaire**

- Are you familiar of needle stick injuries?
- Are you aware of the blood borne diseases transmitted by needle?
- How familiar are you with needle destroyers
- Which of these needle removers have you used?
- How did you first hear about needle removers?
- Overall, how do you rate the quality and use of needle destroyers?
- Would you recommend needle destroyers to a friend or associate?

- How likely are you to buy needle destroyer in the future?

## RESULTS

The data collected was analysed and tabulated along with suitable explanatory chart. About 71% of the dentists rated the quality of needle destroyers as good, whereas only a mere 6% use it regularly. However, 65% of the dentists were aware but never used it. 56% of them learnt of needle destroyers through friends, 21% through Internet and 12% through magazines.

## DISCUSSION

This study was conducted to assess knowledge, attitude and practice regarding the usage of needle destroyers in general dental practices. From the survey taken various inferences can be drawn. A majority of dental practitioners about 65% of them were aware of needle destroyers but haven't used the instrument. This may be due to cost and availability of the device. 56% of the dental surgeons claimed to have gained knowledge regarding needle destroyers through associates or friends, 21% of dentists through internet and the remaining through newspapers and magazines.

Most dental practitioners gave positive reviews regarding the instrument and promised to buy a needle destroyer in future. Needle stick injuries are a common incidence in medical practices<sup>[4]</sup>. The needle stick may serve as mode of transmission of many blood borne diseases such as HIV and hepatitis<sup>[8][9]</sup>. Hence, proper disposal and handling of the needle is essential. Most dentists remove and bend the needle manually from the syringe and then dispose it which is a bad practice. Even wearing dual latex gloves doesn't guarantee protection against pathogens. Usage of needle destroyers ensures maximum protection against pathogens and also injuries<sup>[7]</sup>. Also, ensures a easier and safe disposal of needles. About 800,000 injuries occur annually due to puncture of the epidermis of the skin due to syringes and about half of which go unreported.<sup>[4]</sup> There is a huge possibility of transmission of bacteria, protozoa, viruses and prions<sup>[4]</sup>. Disposal of such wastes known as sharp wastes is also difficult. Sharp waste disposal is done by autoclaving.<sup>[2]</sup> Incineration is also an unorthodox method of safe disposal but isn't preferred. Only chemotherapy sharps are disposed by incineration. Most hospitals dispose wastes by sealing the needles in a container ensuring minimum contact. Usage of Needle destroyers in clinical environment reduce the instances of accidental needle-sticks injuries because they allow immediate removal and containment of the needles. It paves way for easier sharps disposal, lesser pathogen spread and can reduce the occurrence of needle stick injuries.

Also, it ensures that needles are reused and decreases the need for safety boxes for its disposable. Limitation of this device is that it requires two hands for its usage and in an hospital environment it may not be possible at all times which may cause exposure of the needle posing a risk to health care workers. Moreover, these devices are expensive and not readily available in all markets around the world. Hence, it may prove too expensive for many medical and dental professionals. Increased awareness and knowledge regarding needle destroyers will ensure better availability of the device and reduce drastically the occurrence of needle stick injuries among health care professionals

## CONCLUSION

A majority of the dental practitioners about 65% surveyed were aware of needle destroyers but never used it and 56% of them claimed to have gained knowledge regarding needle destroyers from friends or associates. Hence, there is need to create awareness regarding the usage of needle destroyers among the general Dental practitioners.

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