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Loss and relocation of DNA and fingerprints during packaging and transport of forensic exhibits

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Many traces, that are valuable for crime reconstruction, such as DNA and fingerprints, are often invisible to the naked eye. This makes finding and securing them challenging. Their recovery is further complicated by the fact that these traces can change over time due to activities in the forensic examination process. Some of these potentially altering activities are the packaging and transport of forensic exhibits. The proper packaging and transport of forensic evidence is crucial to ensure the integrity of the traces and their correct interpretation. For example, the potential loss of minute amounts of DNA or identifying features in fingerprints could obstruct the identification of a possible suspect. Additionally, the relocation of DNA from one location of the exhibit to another could be detrimental to its evaluation given propositions at the activity level, when the location of traces is of importance.

Even though the packaging and transport of forensic exhibits are key steps in the forensic examination process, little is known about their actual impact on traces. For that reason, one research track of the “No trace to waste” project (*start January 2023*) will focus on trace dynamics during the packaging and transport of forensic evidence.

First experiments aim at gaining insight into where a piece of evidence comes into contact with its packaging and possibly itself during transport, using tracers such as paint. Commonly encountered exhibits like clothing, knives, and firearms, and their standard packaging will be analyzed. Using these findings, the experiments will be repeated with biological traces and fingerprints to investigate the severity of the loss and relocation of these traces. Alternative packaging methods will be examined and compared to the standard procedures in the Netherlands. The results from these studies will be used to potentially adjust current packaging and transport methods within Dutch police forces in order to minimize the loss and relocation of DNA and fingerprints and, therefore, ensure the integrity and proper interpretation of these traces.