

The average RMP of all samples in all populations highlighted tended to be higher in the populations individuals self-identified as. For example, AAs had the highest RMP in African populations. Likelihood ratios (LR) were calculated for all sequenced individuals by dividing the highest RMP obtained from the three US populations by the second highest in that same set. The number obtained represented how much more likely it is to observe that profile if the individual is of the population at the numerator vs. the one at the denominator. For SWHs, given the admixed nature of this population, the method predicted the incorrect population 38% of the time (always EA instead of SWH), using an LR threshold of 1000. The SWH and AA populations should include more individuals to reach $n=100$. Also more populations and more MHs specifically selected for their ancestry informativeness should be included in the assay. Yet, the data supports the hypothesis that MHs can be used for biogeographic ancestry inference. Once enhanced and optimized, this tool has the potential to provide investigators with useful information in cases where the STR profile from crime scene evidence does not match any of the suspects or generate database hits.

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THE ANALYSIS OF ILLICIT DRUGS IN SYDNEY WASTEWATER

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Illicit drug consumption and trafficking is a major global problem. In this context, wastewater analysis offers objective and complementary information to illicit drug agencies by monitoring trends and pattern of illicit drug consumption. The first objective of the study was to investigate the temporal and geographical distribution of illicit drugs in Sydney. The second objective was to explore possible similarities/differences in consumption between this study (Sydney area), a study conducted around Australia and one conducted in Switzerland by different researchers. Wastewater specimens located in four different sewage treatment plants in the area of Sydney were collected in March 2016. Thirteen selected illicit drug target compounds were extracted using solid phase extraction, followed by analysis using liquid chromatography coupled with tandem mass spectrometry. The amount of illicit drug compounds measured in the wastewater was used for the estimation of the consumption. Temporal and geographical analyses were conducted to obtain a better understanding of the type and amount of illicit drugs consumed in Sydney. Trends and geographical patterns in illicit drug consumption in Sydney were observed. Indeed, the analysis of Sydney wastewater revealed that methamphetamine was consumed the most, followed by cocaine, 3,4-methylenedioxyamphetamine (MDMA) and morphine, among the illicit drugs targeted in this study. Weekly patterns were also observed (e.g. for MDMA and cocaine) where the consumption was higher during the week-end than during the week. The geographical analysis showed a higher amount of illicit drugs consumed in the eastern part of Sydney (except methamphetamine which was more consumed in the southern part of Sydney). This could be due to the fact that this region is very demanded by young adults, surfers, students and tourists, and many wealthy people are settled there. The comparison of our study to the study conducted around Australia showed a high consumption of methamphetamine and MDMA in Sydney in comparison to the diverse areas investigated in the different States and Territories. The comparison between Sydney and Switzerland revealed a different consumption in these countries, in line with the indicators of the traditional market. For instance, cocaine is predominant in Switzerland, whereas methamphetamine and MDMA are dominating in Sydney. The authors suggest that the information obtained through wastewater analysis can be of great importance for law enforcement agencies as it provides a complimentary and more objective estimation of the illicit drug consumption and by extension information about the size and the evolution of the related illicit market.

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UNNATURAL DEATHS OF GIRL CHILDREN AND FEMALE YOUTH; A STUDY FROM THREE PROVINCES IN SRI LANKA

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Introduction: Death of a child, an adolescent or a youth whether male or female is a sensitive and traumatic event to witness due to its long lasting effects to many lives. Children and adolescents are considered vulnerable because their wellbeing is dependent on the elders. Moreover any form of violence resulting death of a child provokes a massive social response and even demands severe punishments of perpetrators. **Objectives:** To describe the age related associations to different types and circumstances of unnatural deaths of girl children (0-18 years) and young women (18-24 years) as well as to describe etiologies of the deaths and their relationship to the cause of death. **Methodology:** A retrospective descriptive study was conducted on unnatural deaths of females less than 24 years of age from Western, North Central and Southern provinces employing convenient sampling. Records of Inquirers into Sudden Deaths, post-mortem reports and police information over a period of three (03) years (2013-2015) were perused with approval from relevant stake holders. Data was obtained according to a pro-forma developed and analysis was done using Statistical Package for Social Sciences. **Results:** Out of the 56 deaths of children and young adults included in the study, the majority (64%) belonged to the category of youth (age 15-24 years) while 18% were below the age of 5 years and 18% were between 5-14 years. Half the deaths (48%) had been reported from rural areas of the selected provinces and 38% were from low income backgrounds. Analysis of the manner of death revealed 54% suicides, 25% homicides and 18% accidents. The perpetrator was a known person to the victim in 10 of 11 homicidal deaths. Both suicidal and homicidal deaths were commonly observed among the youth category with suicides being statistically significant ($p=0.001$). Poisoning was the commonest cause of death seen among the youth (41%) and it was also the commonest cause associated with suicides (57%). Analysis of the 30 suicidal deaths revealed 8 deaths related to love affairs, while family disputes (guardians) amounted to 6 deaths. **Conclusion:** The highest number of unnatural deaths was seen among the youth category with a statistically significant number of suicides. Love affair and family related problems were the commonly observed underlying etiology for such deaths among young adults.

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SUICIDE BY FATAL PENTOBARBITAL INTOXICATION IN ONTARIO FROM 2012-2015

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A finding of a fatal level of pentobarbital in a coroner's case where the case history had not indicated such drug use prompted a review of fatalities in Ontario attributed to pentobarbital toxicity from 2012-2015. Twenty deaths were identified; the number of fatal pentobarbital deaths ranged from three to eight cases per year over this time period. In eleven of the twenty cases identified, there is clear evidence that the drug was purchased over the internet from Mexico or China and imported into Canada. In four of these cases, it appears that the pentobarbital was labelled as a different, innocuous chemical to facilitate crossing the border without scrutiny.

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