Saliva or oral fluid can be collected non-invasively by expectoration, by aspiration, by vacuum or by saturation of an absorbent swab (Kidwell et al. 1998). Detection times are comparable to those in blood. As much as 1.5L of saliva per day is produced by the submandibular, parotid and sublingual glands inside the mouth. Secretions from a specific gland may be collected using a special device or by cannulation, but this is uncommon. Although specific gland secretions are advantageous from a standpoint of saliva: plasma ratio and reduced oral contamination, mixed saliva is typically collected for routine drug-testing purposes. Oral fluid can be collected non-invasively, conveniently and without invasion of privacy. Chewingan inert substance, such as Teflon tape or a rubber band, may increase salivation for the purpose of specimen collection. It should be verified that no adsorption takes place between the drug and the chewed substance. Acidic sweet sorcitric acid has also been used to stimulate glandular secretions. Care must be taken that residual food, drink or interfering substances inside the mouth do not interfere with the analysis. This is particularly important for drugs that are ingested orally or smoked.

Owing to the ease and non-invasive nature of specimen collection, saliva is of particular interest in workplace drug testing, for insurance testing and, more recently, for roadside impairment testing. Saliva contains serous fluid derived from plasma. This ultra filtrate of interstitial fluid contains the unbound fraction of drug at concentrations that are typically proportional to those measured in plasma. However, the predictable relationship that theoretically exists between saliva and plasma drug concentrations is influenced by many factors such as saliva flow rate, which can complicate pharmacological interpretation (Crouch 2005).