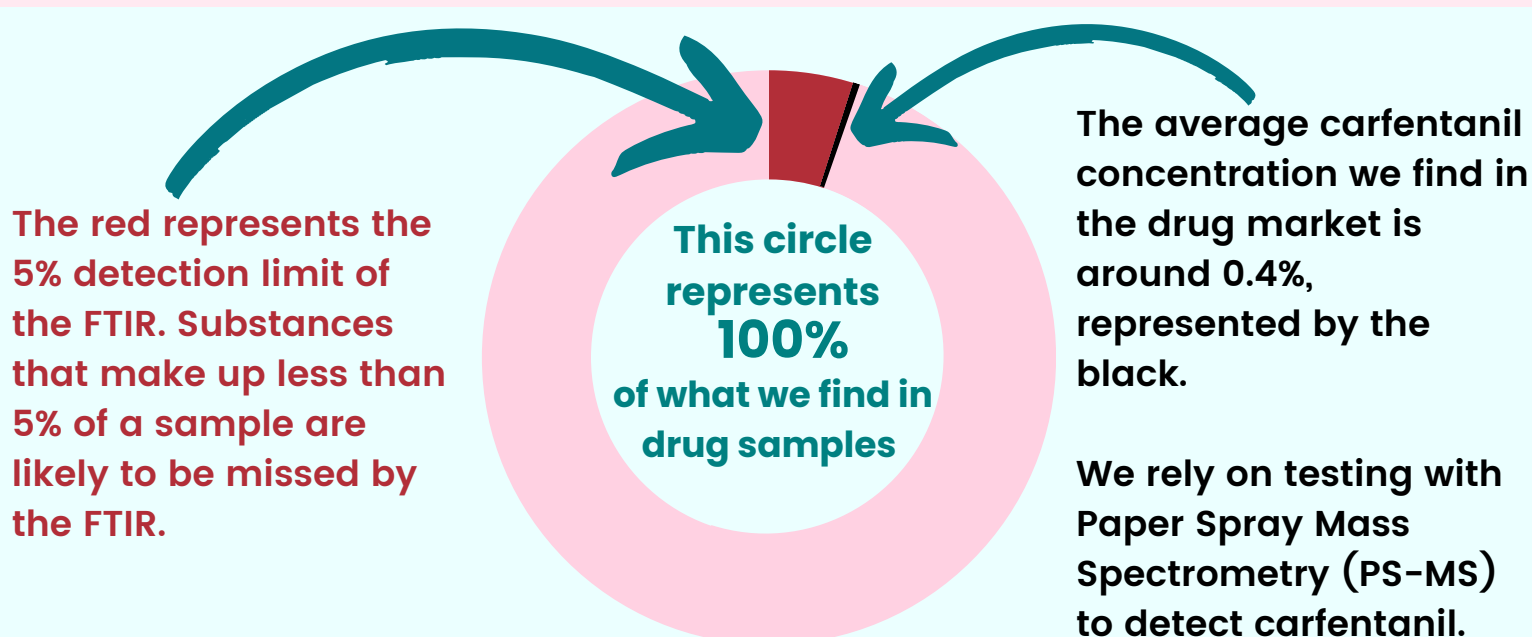


FTIR Limitations

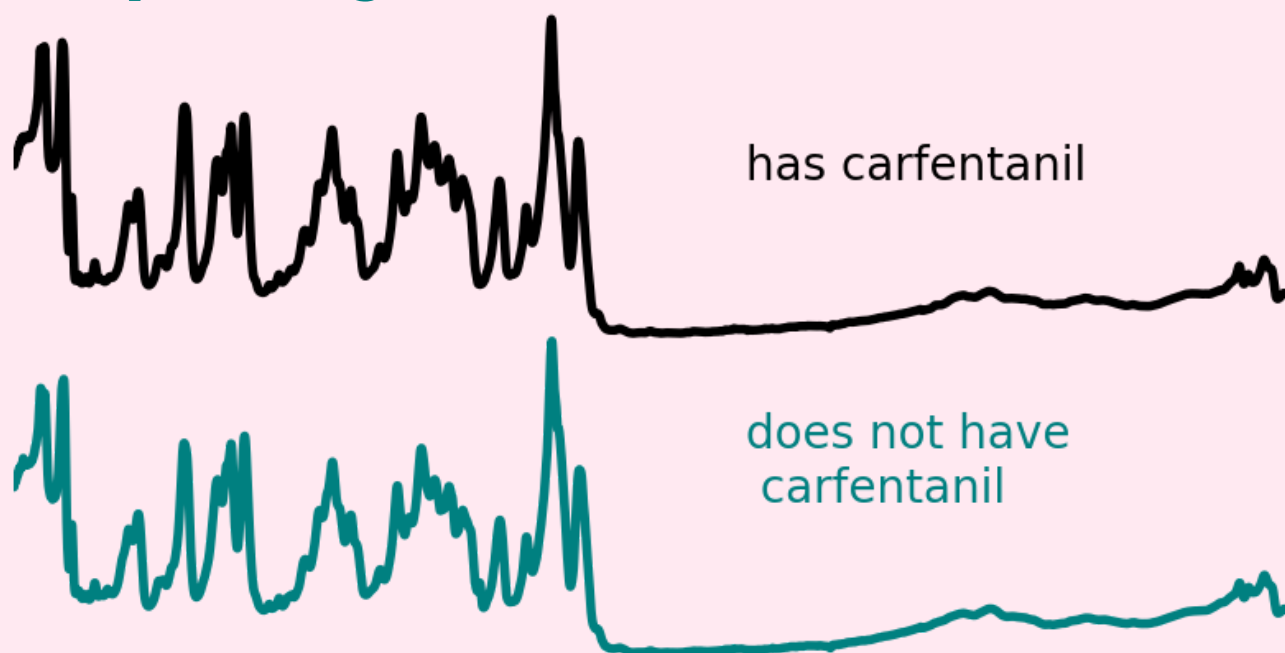


The biggest limitation of the infrared spectrometer (FTIR) is that it can't detect compounds that make up less than 5% of a sample.

Substances of high potency are more likely to be present in low concentrations. This includes drugs like carfentanil, other fentanyl analogues, and benzodiazepines. These substances have the biggest risk of being missed by the FTIR. Fentanyl and benzo test strips help us out a bit - but they still do not tell us the analogue that is present.



Here's an example of the FTIR signals that we analyze to give results:



As you can see, these signals are virtually identical. That's because low concentration components like carfentanil get masked by other components.

PSMS results allow us to give more detailed info than results from FTIR alone. Here's an example of how messaging differs for the same sample:

FTIR ONLY results:

"We found your sample to contain fentanyl at 2-7% and a benzo, cut with caffeine and erythritol. The average concentration of fentanyl we saw in down samples last month was 10%, so your sample may have around half the average we see in Victoria. A benzodiazepine was detected by strip test, but we were not yet able to identify which benzo or how much was present. Please be aware that instruments at this site (FTIR only) are not suitable for detecting which fentanyl and/or fentanyl analogue or benzos are present in this sample below 5%. Please check back for confirmatory results when we run the sample through our Mass Spectrometer in Victoria."



Same sample, updated with FTIR + PSMS:

Updated results 10/18: We found this sample to contain Fentanyl at 6%, Carfentanil at 0.25%, Flubromazepam at 1%, with caffeine and erythritol as cutting agents. The average concentration of fentanyl that we see in down samples in Victoria is about 12%. Carfentanil is a fentanyl analogue that is about 100x stronger than fentanyl. That would make this sample approximately equivalent to 31% fentanyl, more than 2.5x higher in potency than the average sample. Flubromazepam is a benzo that is about 5x weaker than xanax, but has a longer duration of 12-18 hours."