

## The case of antineoplastic occupational exposure

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### Introduction

Task-based approach implicates identifying all the tasks developed in each workplace aiming to refine the exposure characterization. The starting point of this approach is the recognition that only through a more detailed and comprehensive understanding of tasks is possible to understand, in more detail, the exposure scenario. In addition allows also the most suitable risk management measures identification. This approach can be also used when there is a need of identifying the workplace surfaces for sampling chemicals that have the dermal exposure route as the most important. In this case is possible to identify, through detail observation of tasks performance, the surfaces that involves higher contact (frequency) by the workers and can be contaminated.

### Aim of Study

Identify the surfaces to sample when performing occupational exposure assessment to antineoplastic agents. Surfaces selection done based on the task-based approach.

### Methods

Task-based approach was used to identify the surfaces to sample. 5-fluorouracil (5FU) was used as surrogate marker for surfaces contamination by all antineoplastic drugs. Samples (n= 45) were collected in one hospital located in Lisbon (preparation and administration units) by wipe-sampling method. Afterwards all samples were analyzed by HPLC-DAD (LOD=0.55ng/LOQ=1.67ng) (Fig. 1).

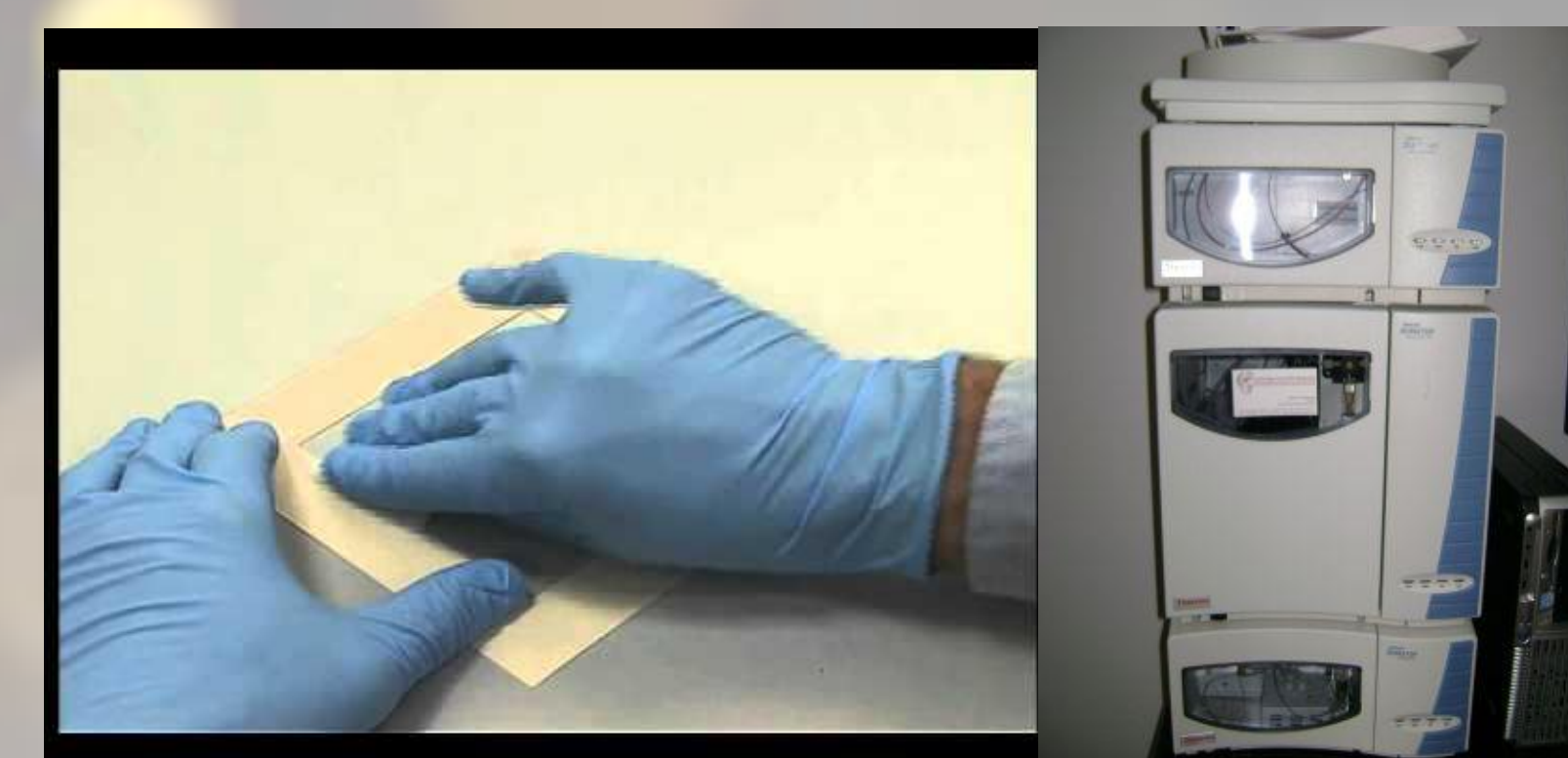


Figure 1: Sampling and analytical methods

### Results

- ✓ Results ranged from 2.34 to 75.24 ng/cm<sup>2</sup>.
- ✓ The higher value was obtained in a support table of the administration unit.
- ✓ The lowest level was obtained in the transfer maniple (preparation unit).
- ✓ The following two values (42.57 and 57.70 ng/cm<sup>2</sup>) were obtained in surfaces of the administration unit handle/touch normally without protection gloves.

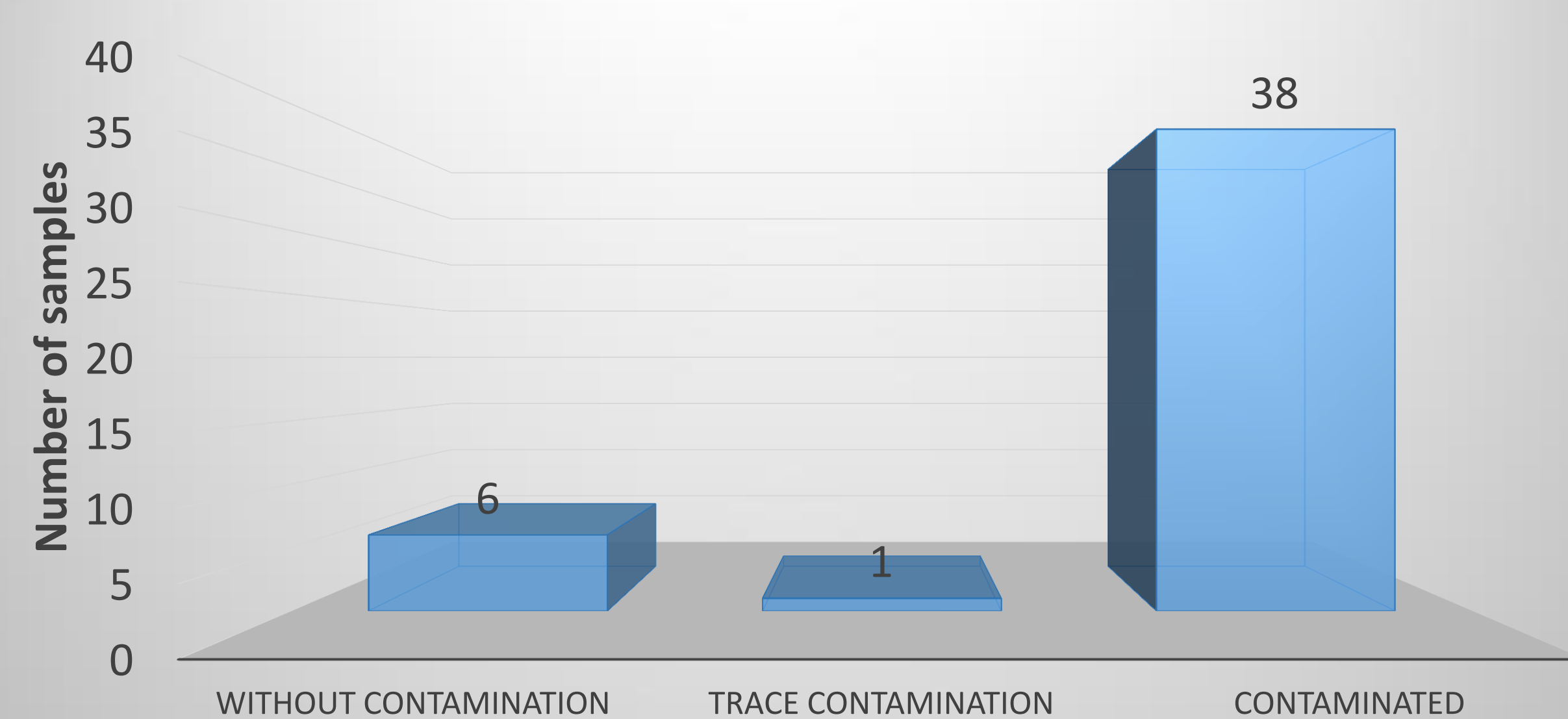


Figure 3: Contamination found in the samples

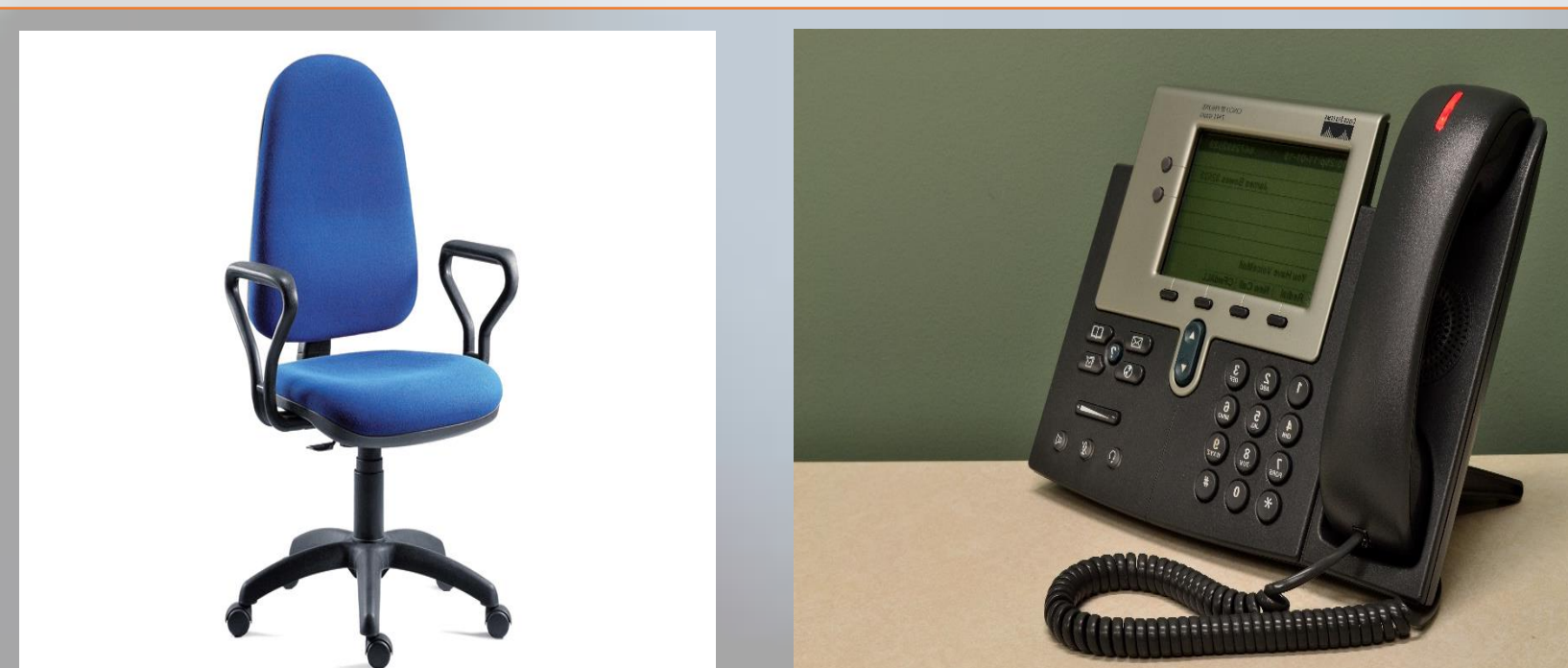


Figure 3: The most contaminated surfaces touch by nurses in the administration room

### Conclusion

Results point out for the importance of task-based approach for:

- ✓ Surfaces sampling strategy definition;
- ✓ Identification of the surfaces that represent higher risk for workers;
- ✓ Identify the surfaces that have to be included in the cleaning protocol or changed the cleaning protocol.

Table 1. Results obtained in each unit (ng/cm<sup>2</sup>)

	Preparation unit		Administration unit	
	n=19		n=26	
>LOQ	14	74%>LOQ	24	92%
LOD<Traces<LOQ	1	5%LOD<Traces<LOQ	0	0%
ND	4	21%ND	2	8%
Maximum	35.38	Maximum	75.24	
Minimum	2.34	Minimum	7.30	

### References

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