



**MILESTONE**  
H E L P I N G  
P A T I E N T S



## NEW TECHNOLOGY MINIMIZES EXPOSURE TO FORMALIN

### CUSTOMER

Helios University Hospital Wuppertal has more than 2,500 employees caring for more than 50,000 patients per year. The Pathology Department employs 21 laboratory technicians who handle approx. 80,000 biospecimens per year. Biospecimens are received from Wuppertal six operating theatres, but also from other hospitals and centres in the region.

### CHALLENGE

At Helios Wuppertal, formalin is a necessity in daily tasks when dealing with specimens. The challenge is to reduce formalin exposure in the transport process from the operating room to the pathology department.

### SOLUTION

"The new UltraSAFE technology has helped us minimize exposure and reduce formalin consumption with benefits for both the operator's safety and the environment."

### BACKGROUND

When Prof. Dr. Hans Michael Kvasnicka and Ralf Lieberz began their work to minimize staff exposure to formalin, buckets for biospecimens were cleaned from formalin after use. This was done to save money on buckets. But on closer analysis, it turned out that it was not economically viable. Staff costs for cleaning were higher than using new buckets; staff were also constantly exposed to formalin. Moreover, there was a risk of contamination between biospecimens, which could affect the result of the diagnosis and eventually patient safety. Therefore, it was decided to introduce a closed system, where staff do not get exposed to formalin, as well as biospecimens traceability from the operating room to the pathology department. As a solution to this challenge, Helios Hospital Wuppertal chose to install two UltraSAFE instruments



*Ralf Lieberz and Prof. Dr. Hans Michael Kvasnicka*

## CASE STUDY

### UltraSAFE



which were placed in the operating theatres, so that OR nurses could place the biospecimens in buckets after extraction. In the closed chamber of the UltraSAFE unit, the biospecimen is weighed and the correct amount of formalin is poured into the bucket: in this way, nurses do not inhale or get exposed to formalin.

#### IMPLEMENTATION

Since the implementation of UltraSAFE, Helios Hospital Wuppertal has experienced an increased quality in the fixation of the biospecimens, as UltraSAFE automatically dispenses the right amount of formalin during each run. This ensures a uniformly high quality of the biospecimens and also allows to trace how the single biospecimen has been fixed. Each bucket has a unique bar code containing all the necessary information about fixation. This allows the biospecimen and its data to go hand in hand throughout all the subsequent stages of the pre-analytical process.

#### THE BENEFITS OF ULTRASAFE

The nurses in the operating rooms quickly saw the benefits of safely and easily dosing formalin. There are many young women among the staff and especially the pregnant women are happy to avoid inhaling the formalin fumes or getting exposed to formalin. Approximately 60 nurses use UltraSAFE and they report that it was easy to start using the machine after a brief introduction. 2-3 days after the installation, everyone was easily using the unit. Prof. Dr. Kvasnicka and Mr. Lieberz say that the success lies in the fact that UltraSAFE is designed to support the staff,

so that they can perform their work more safely. Pathology and the operating rooms have worked closely together on initiating the project to ensure a good reception in the operating rooms as well as a good handover to the pathology department.

#### FUTURE PLANS

To investigate the extent to which the use of the closed system minimizes exposure to formalin, Ralf Lieberz and Olaf Schwarz have initiated a study as part of the Master Thesis of Olaf Schwarz for his management study. The study analyzes whether there is a difference in the concentration of formalin in the air around the filling station with an UltraSAFE instrument compared to a normal filling procedure. In addition, the concentration of biomarkers in the urine of the staff is measured to see if there is a difference between staff using UltraSAFE versus the normal procedure. This study will be presented at the German National Congress OR Management in the near future.

#### CONCLUSIONS

A closed formalin system ensures that all staff, from nurses in the operating theatre to lab technicians at accessioning, can safely replenish formalin, transport and receive biospecimens without being exposed to formalin. With the focus that hospitals have on quality assurance, traceability and working environment improvement, a closed system will be a valid and innovative solution that streamlines current processes and ensures a high, uniform quality in the pre-analysis.



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