

WhitePaper

Advances in Pathology Tissue Management Reduce Formalin Use, Improve Quality and Cut Costs

Author: Mark Terry

Editors: Dave Sanford & Joel Servais



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Introduction

Formalin is highly irritating to the upper respiratory tract, eyes, and skin, and is a known carcinogen.

Formalin has been used as a tissue preservative in operating rooms and pathology laboratories for over one hundred years. Formalin is a solution of about 4% formaldehyde and water (known as 10% NBF) and is ubiquitous in clinical laboratories, pathology laboratories, and in operating rooms. It is an inexpensive reagent and effective at what it does.

Unfortunately, it is hazardous. According to the U.S. Department of Labor's Occupational Safety & Health Administration ("OSHA"), formalin/formaldehyde is a moderate fire and explosion hazard when exposed to heat or flame and when mixed with certain chemicals. More problematic are its health hazards. Formalin is highly irritating to the upper respiratory tract, eyes, and skin, and is a known carcinogen. "In humans, formaldehyde exposure has been associated with cancers of the lung, nasopharynx and oropharynx, and nasal passages."¹ It is also considered to be mutagenic.

In addition to those problems, modern healthcare institutions often have multiple clinics, hospitals, operating rooms, and laboratories at separate geographic locations. This requires that surgical tissue samples, large or small, be transported over significant distances in formalin-filled containers, greatly increasing the risk of potentially dangerous formalin spills.

This white paper will look at the risks of formalin use, trends in formalin use and disposal, and how laboratory and operating room workflow is affected by it. Alternate methods for storing and preserving pathology specimens will be introduced along with descriptions of changes to workflow, benefits in terms of healthcare worker safety, and the safety and economic benefits of these changes. Two case studies, one of a major metropolitan hospital that has adopted two systems that modify or eliminate traditional formalin usage, and the other a major hospital in Italy, will be presented.