# Preserving Valuable Clinical Images with Digital Technology

Most medical environments have converted from analog to digital technology to create and store images, raising a challenging question: What does one do with years of accumulated 35mm color transparencies that are difficult to access, susceptible to degradation, and cumbersome to present in lectures or submit for publication?
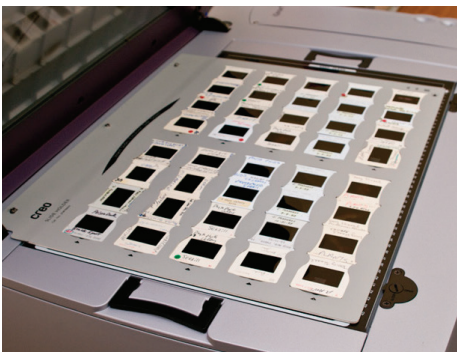
These valuable collections represent years of thoughtful documentation and diligent record keeping and typically include excellent images. While digitizing may be the best solution, most institutions and individuals holding such collections lack the professional grade equipment and expert personnel needed to undertake such an effort. Valuable clinical information and images of historical significance are being lost.

VisualDx has designed a process to digitize and preserve significant film-based images selected from prestigious collections, ensuring their survival and making them available for ongoing use.

## Contributors

Preservation efforts began at VisualDx in 1999 and have grown to include notable collections from institutions and individuals.

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University of Alabama, Department of Infectious Disease

## Going Digital Takes Know-How

Successfully digitizing a photographic collection requires sophisticated scanning equipment, highly skilled operators, and an efficient, thoughtful workflow. VisualDx imaging specialists are highly knowledgeable and experienced in clinical image making and are familiar with the special nature of skin disease, subtle variation, and morphology. Each image is carefully evaluated and optimized after scanning to restore the original intent and maintain consistent overall quality.



**RESTORATION**
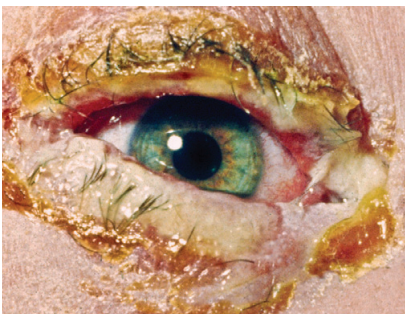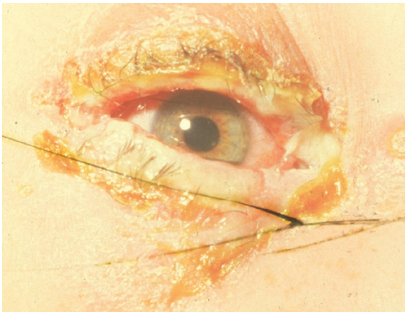
**Restoration of an image made in 1958 showing the accidental implantation of smallpox vaccination.**

In instances where an image is either very rare or has historical significance, special attention is paid to restoring information lost as a result of damage or deterioration.

## Our Process – Restoring and Preserving Valuable Clinical Information

Deterioration undermines the accuracy of a medical image by detracting from or obscuring visual information. Virtually all film-based image collections have suffered some form of loss. The most common factors and accelerants of deterioration are improper non-archival storage materials, careless handling, and unstable environmental conditions (temperature, humidity, and light exposure).



Not all plastic sleeves are safe for archival. Plasticized PVC (polyvinyl chloride) is not stable and can emit a damaging acid as it deteriorates that causes an oily residue to form on slides.



Many of the materials commonly used to store slides are harmful. These cardboard boxes are non-archival and were never intended to be used for long-term storage.

## Archiving for Longevity – Assurance of Collection Backup

No single storage arrangement is adequate for archiving important image data. VisualDx has a 3-level backup system for archiving high-resolution master (TIF) files and processed derivatives:

- Primary – Rack mount server and redundant array of independent disks (RAID)
- Secondary – DVD media (with 5-year migration to newer media)
- Tertiary – Duplicate DVD set stored off-site at an Iron Mountain facility

In addition, all media are stored in a stable temperature- and humidity-controlled environment. You can rest assured your collection will be accessible even if the worst should happen.

 **visualDx.**

**visualdx.com**

## Share Visual Knowledge with Clinicians, Consumers, and Students

When you preserve your images with VisualDx, you become part of a major effort that will help physicians, medical students, and consumers around the world. With our contributors, we have developed VisualDx (visualdx.com), an online visual diagnostic tool for medical professionals proven to improve diagnostic accuracy by 120% compared with using traditional texts.
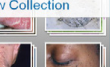
Our popular website for health care patients, Skinsight (skinsight.com), is a portal to general skin care information that features thousands of medical images that help patients make more informed health care decisions.

Additionally, VisualDx provides dermatological instruction to medical students and residents with LearnDerm resources. This educational program includes the LearnDerm online tutorial with 5 lessons on the basics of dermatology, including an overview of lesion types, configurations, and variation in presentation.

## Our Partnership – A Collaborative Effort

We respect your image rights and do not assume copyright of a contributor's original images. We do not limit or hinder contributors' use of their images for education, publication, and patient care. In exchange for allowing us to use your images in our image-based products, we provide the following:

- Digitized copies of the images we select for scanning (high quality, high resolution 300 PPI)
- Assurance of long-term archiving and backup of images we scan
- Online, secure access to images through our internal knowledge management system, KMx
- A VisualDx license for personal use

As a contributor you have access to your images and image data within our KMx knowledge management system.



This collaborative environment allows you to ensure the accuracy of image data and further develop your collection.



See an overview of your collection, look up a specific image, or quickly search by disease, image notes, and more.

# Digitizing the Esterly Collection – A Customized Approach

Dr. Nancy Esterly, MD, is an internationally renowned pediatric dermatology expert, popular professor, and author of respected books such as the *Textbook of Neonatal Dermatology* and the *Handbook of Genetic Skin Disorders*.

Dr. Esterly chose VisualDx to digitize and preserve her lifetime collection of images of neonatal and pediatric skin conditions, photographed and catalogued over decades. VisualDx devised a custom strategy to process the nearly 20,000 35mm slides.

## The Process
Our physician editors systematically reviewed the collection and selected the best, most representative images and cases for scanning. Overall, 13,000 images were digitized and are currently archived at VisualDx.

## Maintaining Order
Dr. Esterly's slides had been arranged using a traditional numbering protocol, Retrieval System for Dermatological Photographs. VisualDx retained the numbers so that Dr. Esterly could continue to search her collection using this familiar system.

## Transcribing Notes
Nearly all of the slide mounts contained handwritten patient information, diagnoses, test results, and treatment and progression notes, which were all carefully entered in the database in association with each image.

## HIPAA Compliance
Compliant with standard practice, images were carefully cropped or otherwise modified to protect patient identity.

## Secure Access for Dr. Esterly
Now, Dr. Esterly has secure password-protected access to her digitized collection. She can search by diagnosis, lesion type, body location, or any number of criteria, and she can view, download, and share her images with colleagues.
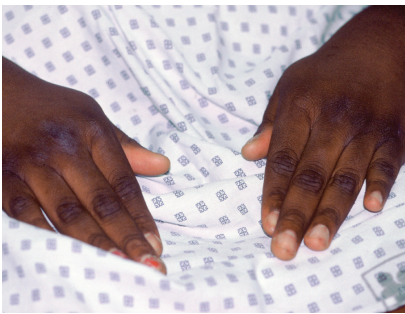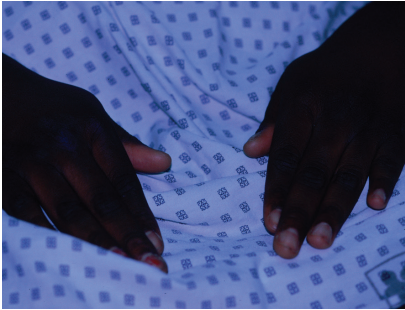
Exposure and color issues that obscured clinical information were addressed after scanning.

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# Solutions for Your Image Requirements

VisualDx is committed to improving how we create and manage medical images. As part of this effort, we offer services and guidance that promote community and advance shared goals. Please contact us if you are interested in learning more about digitizing your film collection or any of our other projects.

- Centralized image collections for teaching
- Recommendations for digital clinical image making
- Digital asset management (DAM)
- Dermatology lexicon