

I am a member of what people call the “sandwich generation.” I’ve spent the past decade caring for my own family while looking out for the needs of my aging parents. My father is now 92, and his cardiologist and I have gotten to know each other pretty well over the past several years as we refine his medications.

I realized how important the shape, size, and [color of prescription pills](#) were one morning a few months ago. Feeling not quite right, my dad had gone to his pill box to survey his daily dosage—and realized that his regular heart pill looked wrong. After calling his doctor, he headed to the emergency room, where the medical staff determined that an error had occurred when his prescription was filled. His medication dosage had nearly tripled, and if it weren’t for that differently colored pill, my dad might not have caught the change in time.



Prescription pill shape, size, and color all play a significant role in patient identification and safety. Image Source: Flickr user Ly Thien Hoang (Lee) ([CC BY 2.0](#))

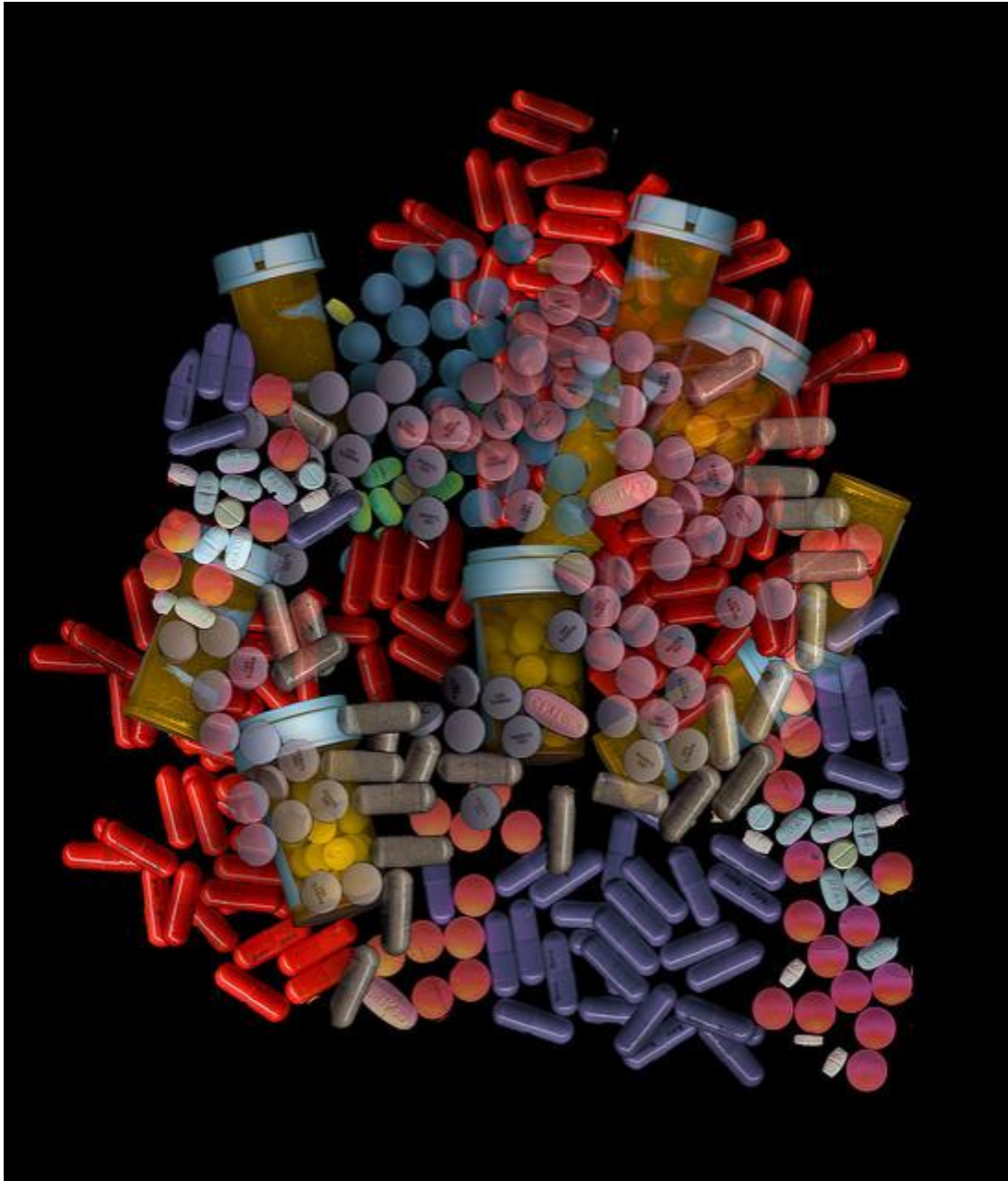
Color Variations Help Prevent Medical Errors

Unfortunately, medical errors such as these occur more frequently than they should. Statistics show that “medication errors cause at least one death every day and injure approximately 1.3 million people annually in the United States”¹

These numbers are one of the main reasons that shape recognition, color-coding, and spectral technology have become a priority among pharmaceutical manufacturers. Pharmaceutical companies must develop many variations in size and color to help patients like my father visually identify different strengths and dosages of the same medication. If patients can spot a clear difference in drug color, it is a signal to call the pharmacist immediately and ensure no errors have been made.

In addition to the safety benefits, prescription pill colors also play an important role in brand name recognition and consumer acceptance. Although color does not affect drug effectiveness, studies

have shown that brightly colored medications are often perceived as more potent and reliable than less saturated color variants. And visual attachment is often used to increase product sales. In fact, “Patients can actually get emotionally attached to the way a certain pill looks, and continue buying the expensive brand name drug even though the same drug is available in a much cheaper generic form”². But with thousands of color combinations to choose from, I’ve watched an increasing number of pharmaceutical companies turn to advanced spectrophotometry to ensure that [color recognition and consistency](#) are achieved.



Pharmaceutical companies choose from a variety of color combinations to help identify both their name brand and help to differentiate dosages and potency. Image Source: Flickr user psyberartist ([CC BY 2.0](#))

Utilizing Color Technology in the Pharma Industry

Spectrophotometers provide the highest level of color analysis technology used in today’s pharmaceutical market. As noted above, prescription pill colors and shapes are derived from a huge

database of choices. While shape identification is often cut and dried, color differentiation is more subjective.

The human eye can identify over 10 million color combinations, and individual [color perception](#) varies greatly from person to person. While the naked human eye can struggle to see slight variations in similar hues—a problem if you’re a manufacturer striving for consistency—spectrophotometers offer the ability to distinguish even the slightest color variations and to quantify these differences, ensuring both identification and repeatability.



Developing prescription colors and monitoring their consistency is an important step in product development and requires advanced color measurement instrumentation. Image Source: Flickr user Kate Russell ([CC BY 2.0](#))

This technology has revolutionized the way many prescription drugs manufacturers use [color-coding strategies](#). Spectrophotometers are becoming an essential tool in a variety of medical settings as a way to ensure quality and patient safety. From laboratory development to small pharmacy dispensaries, spectrophotometers provide the data needed to produce and identify the many variations of color used in today’s pharmaceutical industry.

These tools are available [in a variety of sizes and styles](#) designed to meet the specific needs of the industry. Online spectrophotometers utilize continual process monitoring technology to ensure that color stays consistent and errors are detected immediately. Smaller benchtop or hand-held units provide the flexibility that small pharmacies often need, offering a fool-proof method of sorting and evaluating prescription drug variations.

Spectral Technology Information and Support

Choosing the right spectrophotometer can be a daunting task. Many companies offer variations in color technology, but not all offer the functionality or support you need to fully utilize their tools. At HunterLab, we specialize in developing instrumentation to meet the specific needs of the pharmaceutical industry, and we provide you [with the support](#) to address challenges along the

way. We work closely with industry professionals to develop tools that are both highly effective and easy to use. To learn more about the HunterLab difference or explore our many product options, [contact us today](#).

1. "Medication Error Reports",
10/20/2016, <https://www.fda.gov/Drugs/DrugSafety/MedicationErrors/ucm080629.htm>
2. " Did you know...there are important reasons why your pills all look different?", June 14, 2011, <http://www.gethealthyharlem.org/gethealthyharlemorg/articles/did-you-knowthere-are-important-reasons-why-your-pills-all-look-differe>