Skin biopsy

Identifying and overcoming errors in the skin biopsy pathway

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Learning objectives
After completing this learning activity, the reader should be able to recognize the need for incorporating patient safety care initiatives relating to the skin biopsy pathway and wrong-site surgery into practice; describe the national patient safety mandates that relate to the skin biopsy pathway and wrong-site surgery; and explain how to perform a simplified version of a Healthcare Failure Mode and Effect Analysis (HFMEA) to patient care as it relates to the skin biopsy pathways and wrong-site surgery.

Disclosures
Editors
The editors involved with this CME activity and all content validation/peer reviewers of the journal-based CME activity have reported no relevant financial relationships with commercial interest(s).

Authors
The authors involved with this journal-based CME activity have reported no relevant financial relationships with commercial interest(s).

Planners
The planners involved with this journal-based CME activity have reported no relevant financial relationships with commercial interest(s). The editorial and education staff involved with this journal-based CME activity have reported no relevant financial relationships with commercial interest(s).

The skin biopsy pathway involves numerous communication requirements, technical events, human handoffs, and cognitive decisions. Every step in the process has an error rate >0. To deliver the highest quality care, dermatologists obtaining skin biopsy specimens should implement systems in their office to minimize errors. This includes the prevention of wrong-site surgery, which in most instances involves accurate communication of the correct biopsy location to the performing surgeon. Part II of this continuing medical education article presents techniques for assessing and planning improvement to the skin biopsy pathway in your office, and provides a simple online quality improvement activity that allows Board-certified dermatologists the opportunity to potentially improve aspects of the skin biopsy process in their own practices, and in the process obtain Maintenance of Certification credit. (J Am Acad Dermatol 2016;74:19-25.)

INTRODUCTION

Obtaining a skin biopsy specimen is a common procedure in dermatology, and >2.2 million skin biopsy specimens are obtained annually in dermatology offices in the United States.[1] Studies indicate that the skin biopsy pathway and wrong-site surgery are common sources of error in dermatology practice, with potential patient care and legal ramifications.[2] Accurate communication of the correct biopsy location to the performing surgeon aids in preventing wrong-site surgery.

From the first decision to obtain a biopsy specimen until the integration of those results into the patient's care plan, it has been estimated that there are approximately 20 handoffs.[2] In any one of these steps, errors can occur. While the error rate occurring in any one step in the process is small, the likelihood of an entirely error-free skin biopsy process may be lower than one might think, given the large total number of steps. For example, in a 20-step pathway, if each step is 95% reliable, the overall reliability of the pathway is 36%; if the

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Funding sources: None.
Conflicts of interest: None declared.
Accepted for publication June 8, 2015.
Reprints not available from the authors.

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0190-9622/$36.00

http://dx.doi.org/10.1016/j.jaad.2015.06.034
Date of release: January 2016
Expiration date: January 2019

reliability of each step increases to 99%, the overall reliability of the pathway is 82%.[2] Part II of this continuing medical education article explores where errors may occur in the skin biopsy process, how to identify them in your own practice, and how to potentially address and improve them.

When errors occur, dermatologists and care teams are provided with an opportunity to reflect on their causes. Sometimes a particular event is caused by individual negligence, but often the root of the error lies in the systems and processes that should have been in place to serve as safeguards. By improving systems of care in one's office, the likelihood of errors occurring can be decreased. A number of national organizations have highlighted the importance of this process of developing, achieving, and regularly measuring a local "culture of safety."[3-9] This focuses on identifying and addressing systems issues that lead individuals to engage in unsafe behaviors while maintaining individual accountability by establishing zero tolerance for reckless behavior.[10] In many dermatology practices, systems may not actually be in place to detect or report errors in the first place. The first and most fundamental step in quality improvement is acknowledging that errors do occur and creating a culture and system for effective reporting of them.

HEALTH CARE FAILURE MODE AND EFFECT ANALYSIS

Key points

- **"Failure mode" refers to anything that can go wrong during a single step of a multistep process**
- **Health care failure mode and effect analysis uses a local health care team to brainstorm ways in which things can and do go wrong in common procedures**
- **Hazard analysis is performed to prioritize which failure mode should be addressed first**

Analyzing the possible cause of any error is important, but for many in health care it is unfamiliar. When errors occur, dermatologists must try to avoid the blame and shame mindset—"If it wasn't my fault, it must have been your fault"—and instead explore in greater detail the steps of the process to determine where and why an error occurred. To help identify and better attribute causes of error, medicine has adopted and modified an analytic strategy from industry called failure mode and effect analysis (FMEA).

FMEA is a prospective and systematic approach to identify and understand contributing factors, causes, and effects of potential failures on a process, system, or practice.[11] It was developed by the US military[12] and has been in use since the 1960s in high-risk engineering industries, such as the aerospace industry.[11] For example, FMEA looks at the design of each piece of a jet engine, determines the impact of the failure of 1 engine subcomponent on the function of the whole engine, estimates the probability and overall severity of the failure, and then recommends design fixes to mitigate the risk of subcomponent failures that could lead to major or catastrophic engine failures.

Health care failure mode and effect analysis (HFMEA), a modified variant of FMEA, is a validated risk analysis method developed by the Veterans Administration (VA) National Center for Patient Safety in 2001. It combines features of FMEA from engineering and industry along with hazard analysis and critical control point—an assessment process developed by the US Food and Drug Administration to ensure food safety—and the VA's root cause analysis program.[13]

HFMEA is a 5-step process (Table I) that uses a multidisciplinary team to proactively evaluate a health

Table I. The 5 steps of health care failure mode and effect analysis

Step 1	Define the topic
Step 2	Assemble the team
Step 3	Graphically describe the process
Step 4	Conduct a hazard analysis
Step 5	Actions and outcome measures

Table II. Interpreting failure mode terminology in the process of obtaining a skin biopsy specimen

Terminology	Example
Failure of a process	Skin biopsy error occurs
Failure mode	Biopsy performed on the wrong location
	Inadequate specimen obtained
	Dermatologist never received pathology report
	Results never given to patient
Causes of a failure	Biopsy site not clearly marked for provider delegated to perform procedure
	Incorrect biopsy technique chosen
	Pathology report misplaced in the office
	Patient phone was busy 3 times, staff never tried to call them back
Effects of a failure	Treatment implemented for incorrect diagnosis
	Patient treated for actinic keratosis instead of invasive squamous cell carcinoma
	Patient does not receive biopsy results
	Surgery performed on wrong site