OSAC RESEARCH NEEDS ASSESSMENT FORM

Title of research need:	Alternate Light Source (ALS) findings during a Forensic Examination and Use of an alternate light source during examination of patients presenting for the collection of a sexual assault evidence collection kit
Describe the need:	Research is needed to evaluate appropriate use of ALS during forensic medical examination to locate latent evidence, including semen, saliva, fibers, hair evidence. Research areas should include potential interference from other substances, best wavelength for biological evidence location, and time frames for use. Research for the use of an ALS following bathing/showering is needed. And Research is needed to determine the optimal equipment and procedure for use of an alternate light source during a forensic medical examination of a patient presenting for reported or suspected sexual assault or sexual violence in order to provide a scientific basis for inclusion of alternate light source examination in a standard or best practice recommendation.
Keyword(s):	Alternate Light Source, ALS, Forensic Medical Examination, sexual assault, sexual violence, forensic nursing

Submitting subcommittee(s):	Forensic Nursing, Crime Scene Investigation & Reconstruction	**Date Approved:**	2/2/2023

Background Information:

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

Yes - best practice use of alternate light source during forensic medical examination would be included in the Forensic Nursing standard for evidence collection if there were a scientific basis for standard practice; there is no published research on the best wavelength for location of latent biological evidence on skin. There is no published research on latent biological evidence on skin involving varying skin tones. There is no published research on how detection of biological evidence on skin is affected by bathing, showering, or other environmental factors.

2. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

No. While there is a research study analyzing bruising in persons of color it does not include detection of biological evidence or environmental factors interfering with identification. In general, research is limited for the use of ALS in forensic applications such as scene examination, laboratory examinations and forensic medical examinations.

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

Publications and news articles regarding the use of ALS in forensic nursing include the following:

1. Baltimore Sun: New Technology Helps Convict Domestic Abuse Suspect
2. Journal of Forensic Sciences: Is Fluorescence Under an Alternate Light Source Sufficient to Accurately Diagnose Subclinical Bruising?
3. Journal of Forensic Nursing: Use of an Alternative Light Source to Assess Strangulation Victims
4. Journal of Forensic Nursing, Annual Best Research Article Award (2016) for: Pollitt, E. N., **Anderson, J.C.,** Scafide, K., Holbrook, D., D'Silva, G., & Sheridan, D.J. (2016). Alternate light source findings of common topical products. *Journal of Forensic Nursing*. 12(3) 97-103. doi: 10.1097/JFN.0000000000000116
5. Forensic Technology Center of Excellence (2018). Landscape Study of Alternative Light Sources. U.S. Department of Justice, National Institute of Justice, Office of Investigative and Forensic Sciences

4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest? Is your research need identified by NIJ?

Enhanced, and cost-effective, development/improvement of technologies and capabilities for visualizing and imaging evidence at the scene. - Crime Scene Examination; Policy or Protocol Development; Dissemination or Training

Biological evidence screening tools that can address any or all of the following: identify areas on evidence with DNA, time since sample deposition, number of contributors, proportions of contributors, or sex of contributor(s) - Forensic Biology/DNA; Scientific Research; Technology Development

5. In what ways would the research results improve current laboratory capabilities?

N/A - this research would assist forensic nurses performing forensic medical examinations and is not focussed on laboratory activities. However, this would improve evidence collection practices, resulting in improved evidence submission to laboratories.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

Research of ALS applications will improve evidence based practice in all areas of forensic science. Inclusion of alternate light source in the Forensic Nursing draft standard for evidence collection during a forensic medical examination

7. In what ways would the research results improve services to the criminal justice system?

This research would permit development of training for SANE/SAFE nurses to appropriately use ALS during forensic medical examinations of patients reporting sexual assault and other crimes involving biological evidence potentially transferred to skin. This research would permit development of a standard practice for use of an ALS during forensic medical examinations.

8. Status assessment (I, II, III, or IV): I

	Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted	I	III
Existing current research is being conducted	II	IV

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.