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STATE OF CONNECTICUT v. RASHAD
TEE SELLERS
(SC 20986)

Mullins, C. J., and McDonald, D'Auria, Ecker,
Dannehy and Bright, Js.

Syllabus

Convicted of murder in connection with the shooting death of the victim, the defendant appealed to this court. During the investigation of the victim's murder, clothing that the defendant was seen wearing on the night of the murder was tested for primer gunshot residue (pGSR). Prior to trial, the trial court held a hearing on the defendant's motion to preclude the expert testimony of G, a forensic science examiner with the state forensic science laboratory, who had prepared a report regarding particles found on the defendant's clothing that were commonly associated with pGSR. The trial court declined defense counsel's request for a hearing, pursuant to *State v. Porter* (241 Conn. 57), for the purpose of determining whether G's proffered testimony was based on reliable scientific methodology. The trial court determined that it could admit G's testimony without first conducting a *Porter* hearing because pGSR analysis was based on an established area of forensic science. G ultimately testified at the defendant's trial that lead particles commonly associated with pGSR were found in certain samples taken from the defendant's clothing, and a report that she had prepared concerning her findings was admitted into evidence. During closing argument, the prosecutor urged the jury to consider the pGSR evidence and explained, inter alia, that multiple particles of lead were found on portions of the defendant's clothing where you might expect to find gunshot residue to be deposited. On appeal, the defendant claimed, inter alia, that he was entitled to reversal of his conviction because the trial court had improperly failed to consider forensic advances and modern scientific protocols in the field of pGSR analysis before declining to hold a *Porter* hearing for the purpose of determining the reliability of the methodology underlying G's testimony. *Held:*

The trial court abused its discretion when it denied the defendant's request for a *Porter* hearing based solely on the ground that the methodology underlying the pGSR evidence was well established, and, because that error was harmful, the defendant was entitled to a reversal of his conviction and a new trial.

A trial court presented with a challenge to the methodology underlying testimony based on scientific evidence must, in accordance with its gatekeeper function under *Porter*, consider any new evidence that a party presents concerning that methodology to determine whether that new evidence sufficiently casts doubt on the continued reliability of the methodology such that the methodology is no longer well established.

At the hearing on the defendant's motion to preclude G's testimony, defense counsel proffered evidence demonstrating that there had been advancements in the field of forensic science as it pertains to gunshot residue but that those advancements were not utilized in the present case, and also presented

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contemporary industry standards concerning the reporting of pGSR that may have called into question the reliability of the methodology underlying G's proffered testimony.

The trial court nevertheless proceeded under the premise that the methodology underlying G's analysis and proffered testimony was well established, as the record did not contain either a discussion of the continued reliability of that methodology or a determination that the evidence presented by defense counsel was insufficient to challenge the methodology.

The trial court therefore had improperly failed to exercise its discretion to determine whether the evidence presented by defense counsel had cast sufficient doubt on the continued reliability of the challenged methodology so as to warrant a *Porter* hearing.

Moreover, recent revisions to the published standard operating procedures of the state forensic science laboratory appeared to demonstrate that pGSR is likely not one of the few scientific principles that are so firmly established as to have attained the status of scientific law and, thus, reinforced this court's conclusion that the trial court had improperly failed to consider advances in pGSR analysis before denying the defendant's request for a *Porter* hearing.

The trial court's error was harmful, as this court did not have a fair assurance that the error did not substantially affect the jury's verdict.

G's testimony and report were very important to the state's case, as G provided the only evidence connecting the firearm used on the night of the victim's murder to the defendant.

Furthermore, defense counsel's extensive cross-examination of G did not render the admission of G's testimony harmless, and this court was not persuaded that the overall strength of the state's case against the defendant rendered the trial court's error harmless.

Argued May 14—officially released August 25, 2026

Procedural History

Substitute information charging the defendant with the crime of murder, brought to the Superior Court in the judicial district of Stamford-Norwalk, where the court, *Blawie, J.*, denied the defendant's motion to preclude certain evidence; thereafter, the case was tried to the jury before *Blawie, J.*; verdict and judgment of guilty, from which the defendant appealed to this court. *Reversed; new trial.*

Erica A. Barber, assistant public defender, and *Catherine Cheek*, certified legal intern, with whom, on the

brief, was *Justin Taverna*, certified legal intern, for the appellant (defendant).

Timothy J. Sugrue, assistant state's attorney, with whom, on the brief, were *Paul J. Ferencek*, former state's attorney, and *Margaret Moscati* and *Elizabeth K. Moran*, assistant state's attorneys, for the appellee (state).

Opinion

McDONALD, J. The defendant, Rashad Tee Sellers, appeals directly to this court from the judgment of conviction, rendered after a jury trial, of one count of murder in violation of General Statutes § 53a-54a (a). He claims, among other things, that the judgment should be reversed because the trial court abused its discretion by improperly denying his request for a hearing in accordance with *State v. Porter*, 241 Conn. 57, 80–90, 698 A.2d 739 (1997), cert. denied, 523 U.S. 1058, 118 S. Ct. 1384, 140 L. Ed. 2d 645 (1998), and admitting primer gunshot residue (pGSR) evidence that was unreliable. We conclude that the trial court abused its discretion by improperly denying the defendant's request for a *Porter* hearing based solely on the ground that the scientific methodology underlying the pGSR evidence was well established. We also conclude that this error was harmful and that the defendant is therefore entitled to a new trial. In light of these conclusions, we do not reach the remaining issues presented on appeal.

The record reveals the following relevant facts and procedural history. The victim, Stephon Walthrust, was shot and killed in his car while it was parked on Garden Street in Stamford. As part of the investigation into the homicide, police officers reviewed traffic and surveillance camera footage. Although no camera captured footage of the homicide itself, police officers were able to identify the defendant and to place him in the vicinity of the crime scene using footage of the surrounding area. Following the defendant's arrest, police officers searched his home and found, among other things, a jacket and pants that

matched the clothing that he could be seen wearing in the camera footage. The search did not recover a firearm.

The state had the defendant's clothing tested for pGSR. At trial, the prosecutor planned to call Alison Gingell, a forensic science examiner at the state forensic science laboratory (state laboratory), as an expert witness. Gingell had prepared a report regarding particles found on the defendant's clothing that were "commonly associated with" pGSR. During a July 2023 hearing on a motion to preclude Gingell's expert testimony (July 2023 hearing), defense counsel requested that the trial court hold a *Porter* hearing to determine whether Gingell's testimony was based on reliable scientific methodology. The trial court ruled that it could admit Gingell's pGSR testimony without first conducting a *Porter* hearing because pGSR analysis was based on "an established area of forensic science," and, accordingly, the court allowed Gingell to testify. Gingell testified that particles "commonly associated with" pGSR were found on certain samples taken from the defendant's jacket and pants. Specifically, she found two lead only particles on the right cuff of the jacket, along with only a single lead only particle each on the left cuff of the jacket, the "left pocket area" of the pants, the "back pocket area" of the pants, and the "interior waistband" area of the pants. Gingell also tested samples taken from the pockets of the jacket and the "right pocket area" of the pants, and the results from those samples were classified as inconclusive. No barium or antimony—the other elements that comprise pGSR—was found on the defendant's clothing. Over defense counsel's objection, the trial court admitted Gingell's report into evidence.

During trial, the prosecutor also called Marvin Lanza Rodriguez (Lanza) and John Brackett, residents of Stamford who spoke to the police on the night of the shooting. Lanza testified that, after hearing gunshots, he looked out his window onto Garden Street and saw a person looking in the direction of the homicide scene, who then turned and ran. He further testified that he did not see

anything in that person's hands and that he did not see anyone else on Garden Street at that time.

Brackett testified that, from his apartment, which was located one street over, he heard a loud "thud," and, when he looked out the window, he saw a person sprinting down Garden Street. He testified that he could not see whether anything was in the person's hands and that no one else was on the street at the time.

The state also presented evidence that the victim's cell phone was used to place several calls and to send several text messages to the defendant's cell phone on the night of the homicide, which went unanswered, and that the defendant deactivated that phone number the day following the homicide. Finally, police officers obtained records of a Facebook account that belonged to the defendant that, beginning one and one-half hours after the shooting, he used to search for information regarding a Stamford homicide.

During her closing argument, the prosecutor urged the jury to consider "the gunshot residue" evidence. She explained that "[m]ultiple particles of lead were found on areas of the defendant's clothing where you might expect a cloud of gunshot residue to deposit itself" and that, although lead particles may come from various other sources, "one of those sources is firing a gun, and that cannot be ignored." The prosecutor also reminded the jury that Gingell testified that she had tested samples from the interior of the waistband of the defendant's pants "because that is where a gun is commonly stored."

The jury returned a verdict of guilty, and the trial court sentenced the defendant to fifty years of incarceration, followed by ten years of special parole. The defendant appeals from his conviction directly to this court pursuant to General Statutes § 51-199(b)(3). Additional facts and procedural history will be set forth as necessary.

I

On appeal, the defendant claims that reversal is required because the trial court improperly failed to

consider forensic advances and modern scientific protocols in the field of pGSR before declining to hold a *Porter* hearing. Specifically, the defendant points to the evolution of the standards established and defined by ASTM International¹ as evidence that the methodology employed by Gingell was no longer well established or aligned with the latest developments in those international standards. The state argues in response that the defendant's proffered materials did not challenge the reliability of Gingell's methodology but merely implicated a disagreement regarding its application and that a *Porter* hearing is not the proper vehicle for considering such a disagreement. We agree with the defendant.

We begin with the applicable standard of review. “[T]he trial court is vested with wide discretion in determining the admissibility of evidence,” and a “ruling on evidentiary matters will be overturned only upon a showing of a clear abuse of the court’s discretion. . . . Because a trial court’s ruling under *Porter* involves the admissibility of evidence, we review that ruling on appeal for an abuse of discretion.” (Internal quotation marks omitted.) *State v. Raynor*, 337 Conn. 527, 540–41, 254 A.3d 874 (2020).

“Implicit in that well established principle, however, is the requirement that the trial court exercise its discretion.” *Id.*, 541. Indeed, when “the trial court is properly called upon to exercise its discretion, its failure to do so is error. . . . Therefore, we must determine whether the trial court abused its discretion in determining that a *Porter* hearing was not required and, if so, we must also determine whether this ruling was nevertheless

¹ASTM International, formerly known as the American Society for Testing and Materials, is a global organization whose membership is composed of technical experts and business professionals and which has developed more than 13,000 standards for construction, manufacturing, consumer products and more, including the testing, analysis and reporting of pGSR samples. See ASTM International, Detailed Overview, available at <https://www.astm.org/about/detailed-overview> (last visited August 20, 2026). “[F]ederal, state, and local governments have incorporated by reference thousands of these standards into law.” *American Society for Testing & Materials v. Public.Resource.Org, Inc.*, 597 F. Supp. 3d 213, 222 (D.D.C. 2022), *aff’d*, 82 F.4th 1262 (D.C. Cir. 2023).

harmless.” (Citation omitted; internal quotation marks omitted.) Id.

“In *Porter*, we followed the United States Supreme Court’s decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993), and held that testimony based on scientific evidence should be subjected to a flexible test to determine the reliability of methods used to reach a particular conclusion.” (Internal quotation marks omitted.) *State v. Edwards*, 325 Conn. 97, 124, 156 A.3d 506 (2017). We directed trial judges to serve a “gatekeeper” function when determining whether to allow such testimony by making “a preliminary assessment of the validity of scientific testimony before allowing the fact finder even to consider it.” (Internal quotation marks omitted.) *State v. Porter*, supra, 241 Conn. 68. Thus, trial courts should evaluate expert testimony that is based on scientific evidence “under a threshold admissibility standard assessing the reliability of the methodology underlying the evidence and whether the evidence at issue is, in fact, derived from and based upon that methodology” (Citation omitted; internal quotation marks omitted.) *Maher v. Quest Diagnostics, Inc.*, 269 Conn. 154, 168, 847 A.2d 978 (2004).

However, the fact that scientific evidence is sought to be admitted “does not require necessarily that a *Porter* inquiry be conducted as to the threshold admissibility of the evidence. As we have recognized, some scientific principles have become so well established that [a threshold admissibility] analysis is not necessary for admission of evidence thereunder.” (Internal quotation marks omitted.) Id., 169. Thus, excluded from the threshold inquiry are the “very few scientific principles [that] are so firmly established as to have attained the status of scientific law, such as the laws of thermodynamics, [and such principles] properly are subject to judicial notice” (Internal quotation marks omitted.) *State v. Porter*, supra, 241 Conn. 85 n.30.

Recognizing that “very few scientific principles” have achieved “the status of scientific law,” we have

acknowledged that “[s]cience . . . is not static. Methodologies are continually challenged and improved so that an approach once favored by the scientific community may later cede to a novel approach or simply fall out of favor in its entirety.” (Internal quotation marks omitted.) *State v. Raynor*, supra, 337 Conn. 543. For that reason, “[t]he gatekeeping function of the trial court requires, *at a minimum*, that judges consider any new evidence that a defendant presents when deciding whether to grant or deny a motion for a *Porter* hearing. To hold otherwise would transform the trial court’s gatekeeping function . . . into one of routine mandatory admission of such evidence, regardless of advances in a particular field and its continued reliability.” (Emphasis in original.) *Id.*, 543–44.

In *Raynor*, we provided examples to illustrate the trial court’s gatekeeping function. See *id.*, 550–52. Relevant here is the first example, in which “the trial court begins from the premise that the methodology is well established and that, as a result, a *Porter* hearing is not necessary.”² *Id.*, 551. Under this scenario, we said, the trial court must still “consider the evidence presented by the defendant to determine whether that well established methodology has been sufficiently challenged to warrant a *Porter* hearing.” *Id.* The trial court would then have the discretion either to “deny the motion [for a *Porter* hearing], concluding that the defendant has not presented sufficient evidence in his motion to demonstrate that the methodology may no longer be well established, or to grant the motion, concluding that the defendant has presented evidence sufficiently casting doubt on the continued reliability of the methodology and, therefore, that a full *Porter* hearing is necessary.” *Id.* We acknowledged that, under

²The second example involved a scenario in which the methodology “ha[d] been subject to a *Porter* hearing by another trial court.” *State v. Raynor*, supra, 337 Conn. 551. Although the prosecutor proffered during the July 2023 hearing that the methodology that was used to analyze the pGSR had been subject to several *Porter* hearings, neither the state nor the defendant has provided this court with any such case, and this court has found none.

this scenario, the defendant would bear a “heavy burden” but that it was “not insurmountable.” *Id.*

During the July 2023 hearing, defense counsel proffered that police departments were using gunshot residue evidence “less and less” and that it was “falling out of favor” He argued that, in the absence of “actually swabbing a suspect’s hands in very close, temporal proximity to when an event occurred,” gunshot residue testing “was more and more deemed to be a futile exercise by the police.” In response to the trial court’s statement that scanning electron microscopy/energy dispersive X-ray spectrometry (SEM/EDS), which was the analytical technique used in this case, is “a little more scientifically precise than the old-fashioned [gunshot residue] swab,” defense counsel agreed but contended that, “in this particular case,” the precision of SEM/EDS could actually have been “advantageous” to the defendant’s claim that a *Porter* hearing is required. This is because, when pGSR analysis is done properly, SEM/EDS creates “visual images” that provide scientists with “a better ability to assess the shape of the [pGSR] particles” and not simply the elements that comprise the particles. Although SEM/EDS was used by Gingell in her analysis of the pGSR, her report contains no information about, or analysis of, the visual images created through the use of that analytical technique. Instead, Gingell’s report and notes merely identified the existence of some particles of lead, with no further information about them. In other words, defense counsel argued that advancements in this field of forensic science have enabled scientists to better characterize an isolated lead particle and to determine whether it should be considered “commonly associated with” pGSR, but that was not done in this case.³

In support of these claims, defense counsel proffered two standard guides that were published by ASTM

³Particles of lead, antimony, and barium constitute the foundational chemical triad for forensic pGSR analysis. We observe that the “commonly associated particles” classification is the lowest of three possible classifications of particles that may result from an analysis for pGSR. ASTM International, Standard Practice for Gunshot Residue

International and a report from Brooke Kammrath, a professor of forensic science at the University of New Haven and an assistant director at the university's Henry C. Lee Institute of Forensic Science. One of those two standard guides provides in relevant part that "[n]o interpretations can be drawn from the identification of particles that are commonly associated with pGSR. This includes lead, barium, or antimony particles found in isolation in the absence of characteristic and consistent pGSR particles. Do not report the confirmation of such particles as potentially having originated from the discharge of a firearm, except possibly . . . when high levels of small spherical lead particles that are known to be found in bullet or pellet debris, or from a primer comprised of a lead-based compound only, are supported by analysis of a control reference sample." ASTM International, Standard Guide for Reporting of Forensic Primer Gunshot Residue (pGSR) Analysis by Scanning Electron Microscopy/Energy Dispersive X-Ray Spectrometry (SEM/EDS) (2021) standard E3309-21. Based on that standard, and Kammrath's report, defense counsel proffered that it was "that part of the lab work that . . . is absent in this case," that is, "the absence of the identifiable morphology"⁴

In response, the prosecutor argued that *Porter* was not the "appropriate avenue" because pGSR analysis had

Analysis by Scanning Electron Microscopy/Energy Dispersive X-Ray Spectrometry (2020) standard E1588-20. A particle classified as "commonly associated with" pGSR contains only one of those three elements. *Id.* ASTM International's guide states that lead particles alone "have compositions that are also commonly found in environmental particles from numerous sources." *Id.* Such sources of lead particles include solder for plumbing materials, battery plates, glasses, and paints. M. Serol et al., "Chemical Analysis of Gunpowder and Gunshot Residues," *Molecules*, July 20, 2023, p. 5550. Lead also "still exists in soils close to major highways and roads due to its long-term use in car fuels." *Id.* The areas of the defendant's clothing examined by Gingell did not contain "characteristic particles"—the highest level, which contain all three elements—or "consistent particles"—the second highest level, which contain a combination of two of the three elements.

⁴"Morphology" refers to the "size, shape, structure, and texture" of the particles. ASTM International, Standard Practice for Gunshot

passed *Porter*'s threshold test "time and time and time and time again," though she offered no specific examples to support her assertion. Additionally, the prosecutor did not put before the trial court the methodology utilized by Gingell, instead relying entirely on the idea that pGSR analysis had a well established methodology.

The trial court concluded that pGSR analysis is not "junk science" and that it is "well-trod[den] ground" It therefore determined that there was no "need for a threshold showing" under *Porter* "because it is such an established area of forensic science." We conclude that the trial court abused its discretion in determining that a *Porter* hearing was not required.

As discussed, this case falls under the first example that we set forth in *Raynor*. Thus, proceeding under the premise that the methodology used in Gingell's analysis is well established, the trial court should have considered whether the defendant's proffered evidence "sufficiently [cast] doubt on the continued reliability of the methodology" *State v. Raynor*, supra, 337 Conn. 551. However, the record shows neither a discussion of the continued reliability of Gingell's methodology nor a determination that the proffered evidence was insufficient to challenge the methodology. Instead, the trial court proceeded under a fixed determination of reliability, concluding that *Porter* was satisfied without performing its gatekeeping function. This is precisely the type of "routine mandatory admission" of evidence that we were concerned about in *Raynor*. Id., 544. We conclude that the trial court abused its discretion in failing to exercise its discretion to determine whether the defendant's evidence had cast sufficient doubt on the continued reliability of the methodology underlying the science of pGSR analysis to warrant a *Porter* hearing.

The state's attempt to distinguish *Raynor* by arguing that, unlike in that case, the trial court here "considered and discussed" the defendant's proffered materials is

unpersuasive. We acknowledge that, during the July 2023 hearing, the trial court had before it the two standard guides addressing forensic pGSR analysis that were published by ASTM International, along with Kammrath’s report, and that the court asked questions of defense counsel about those materials. Nevertheless, the trial court did not discuss or analyze whether those materials challenged the reliability of the scientific methodology underlying the pGSR evidence and did little more than acknowledge the defendant’s claim that determining the morphology of a particle had become an important piece of the field’s methodology. Moreover, the fact that the trial court in *Raynor* relied on case law to reach its conclusion; see *State v. Raynor*, supra, 337 Conn. 531, 537, 540–41; whereas the trial court here did not, does not distinguish the two cases in any material respect. At bottom, both trial courts determined that a *Porter* hearing was unnecessary because of the well established nature of the methodology, without meaningfully considering the defendant’s evidence.

The state also contends that the defendant’s materials indicated disagreement regarding the manner in which the pGSR methodology was applied but did not challenge the reliability of the methodology itself. It cites footnote 31 from our decision in *Porter* for the proposition that, “[o]nce the validity of a scientific principle has been satisfactorily established, any remaining questions regarding the manner in which that technique was applied in a particular case is generally an issue of fact that goes to weight, and not admissibility.” (Emphasis omitted.) *State v. Porter*, supra, 241 Conn. 88 n.31. That remains true. However, in the same footnote, this court further explained that the “application of a methodology that is valid in the abstract can be so flawed that, in essence, a different, invalid methodology is being applied.” *Id.* “Thus, although [n]ot every error in the application of a particular methodology should warrant exclusion,” any claimed “error in the application of a reliable methodology should provide the basis for exclusion of the [expert testimony when] that error negates the basis for the

reliability of the principle itself.” (Internal quotation marks omitted.) *Id.* In other words, even if the defendant’s proffered materials did not directly challenge the methodology, as the state claims, the trial court still should have considered whether the defendant demonstrated scientific advancements that sufficiently challenged the application of the methodology on the ground that the application was so flawed that the methodology became unreliable. We agree with the oft cited decision of the United States Court of Appeals for the Third Circuit that “any step that renders the analysis unreliable . . . renders the expert’s testimony inadmissible. This is true whether the step completely changes a reliable methodology or merely misapplies that methodology.” (Emphasis omitted.) *In re Paoli Railroad Yard PCB Litigation*, 35 F.3d 717, 745 (3d Cir. 1994), cert. denied sub nom. *General Electric Co. v. Ingram*, 513 U.S. 1190, 115 S. Ct. 1253, 131 L. Ed. 2d 134 (1995); see also, e.g., *Amorgianos v. National Railroad Passenger Corp.*, 303 F.3d 256, 267 (2d Cir. 2002) (“[i]n deciding whether a step in an expert’s analysis is unreliable, the [D]istrict [C]ourt should undertake a rigorous examination of the facts on which the expert relies, the method by which the expert draws an opinion from those facts, and how the expert applies the facts and methods to the case at hand”).

Our conclusion that it was error for the trial court to fail to consider advances in pGSR analysis is reinforced by the state laboratory’s standard operating procedures for the examination of pGSR evidence (SOPs), which are published on the website of the Department of Emergency Services and Public Protection. Demonstrating that the analysis of pGSR is not a “static” science; *State v. Raynor*, supra, 337 Conn. 543; the state laboratory’s SOPs have evolved significantly over time, with the state laboratory publishing twelve revisions of its protocols between August 2014 and June 2026. See Division of Scientific Services, Department of Emergency Services & Public Protection, CHEM-02 Examination of Primer Gunshot Residue Evidence (last modified June 8, 2026), available at <https://portal>.

ct.gov/despp/knowledge-base/articles/frequently-asked-questions/scientific-services/scientific-services-sops/cas/chem/chem-02-examination-of-primer-gunshot-residue-evidence?language=en_US (last visited August 20, 2026). The fourth revision of the SOPs, which was approved in April 2019, stated that particles “commonly associated with” pGSR have “little significance to pGSR presence.” (Emphasis omitted.) Division of Scientific Services, Department of Emergency Services & Public Protection, Analysis of Primer-Gunshot Residue (pGSR) Evidence (April 2, 2019) p. 8, available at <https://portal.ct.gov/despp/-/media/despp-beta/pdf/scientific-services/sop/cas/chem/chem-02/chem-02-examination-of-primer-gunshot-residue-evidence-1314-4.pdf> (last visited August 20, 2026). The seventh revision of the SOPs—which was adopted by the state laboratory in January 2024, only approximately six months after the conclusion of the defendant’s trial—instructs that “commonly associated” particles should “not be routinely reported.” (Internal quotation marks omitted.) Division of Scientific Services, Department of Emergency Services & Public Protection, Examination of Primer Gunshot Residue (pGSR) Evidence (January 18, 2024) p. 7, available at <https://portal.ct.gov/despp/-/media/despp-beta/pdf/scientific-services/sop/cas/chem/chem-02/chem-02-examination-of-primer-gunshot-residue-evidence-1314-7.pdf> (last visited August 20, 2026). In September 2025, the state laboratory’s eleventh revision of the SOPs had eliminated consideration of “commonly associated” particles altogether. See Division of Scientific Services, Department of Emergency Services & Public Protection, Examination of Primer Gunshot Residue (pGSR) Evidence (September 15, 2025), available at <https://portal.ct.gov/despp/-/media/despp-beta/pdf/scientific-services/sop/cas/chem/chem-02/chem-02-examination-of-primer-gunshot-residue-evidence-1314-11.pdf> (last visited August 20, 2026). We note that, at the July 2023 hearing, defense counsel advocated for the trial court to consider ASTM International’s

standards E1588-20 and E3309-21,⁵ which the state laboratory integrated into its SOPs in January 2024. See Division of Scientific Services, Department of Emergency Services & Public Protection, Examination of Primer Gunshot Residue (pGSR) Evidence (January 18, 2024), available at <https://portal.ct.gov/despp/-/media/despp-beta/pdf/scientific-services/sop/cas/chem/chem-02/chem-02-examination-of-primer-gunshot-residue-evidence-1314-7.pdf> (last visited August 20, 2026). These revisions appear to reflect an evolution in the scientific understanding of pGSR, demonstrating that pGSR analysis is likely not one of the “very few scientific principles [that] are so firmly established as to have attained the status of scientific law” (Internal quotation marks omitted.) *State v. Porter*, supra, 241 Conn. 85 n.30. The trial court abused its discretion by not taking this evolution of scientific testing standards into account when it concluded that pGSR analysis is “an established area of forensic science” and, therefore, that a *Porter* hearing was not necessary.⁶

II

Having concluded that the trial court’s failure to exercise its discretion to consider whether the defendant had sufficiently cast doubt on Gingell’s methodology was an abuse of discretion, we now turn to whether that error was harmless. See, e.g., *State v. Raynor*, supra, 337 Conn. 541. The defendant claims that the error was harmful because Gingell’s testimony was “extremely important” to the state’s otherwise “very weak” case

⁵See ASTM International, Standard Guide for Reporting of Forensic Primer Gunshot Residue (pGSR) Analysis by Scanning Electron Microscopy/Energy Dispersive X-Ray Spectrometry (SEM/EDS), supra, standard E3309-21; ASTM International, Standard Practice for Gunshot Residue Analysis by Scanning Electron Microscopy/Energy Dispersive X-Ray Spectrometry (2020) standard E1588-20.

⁶We nevertheless “emphasize that the question of whether the evidence referenced in the defendant’s motion for a *Porter* hearing casts sufficient doubt on the reliability of the methodology employed by the [state’s] expert to warrant a *Porter* hearing must be vested, in the first instance, in the sound discretion of the trial court.” *State v. Raynor*, supra, 337 Conn. 542 n.7.

against the defendant. He contends that, because there was no other forensic evidence arguably linking him to the crime,⁷ no eyewitness to the shooting, no evidence that he possessed a firearm, and no firearm ever recovered, the admission of Gingell's testimony and report substantially affected the jury's verdict. The state argues in response that the impact of Gingell's evidence was minimal because it was "overshadowed" by the video footage in evidence and the evidence of the defendant's consciousness of guilt following the shooting. We agree with the defendant.

"When an improper evidentiary ruling is not constitutional in nature, the defendant bears the burden of demonstrating that the error was harmful. . . . [W]hether [an improper ruling] is harmless in a particular case depends upon a number of factors, such as the importance of the witness' testimony in the prosecution's case, whether the testimony was cumulative, the presence or absence of evidence corroborating or contradicting the testimony of the witness on material points, the extent of cross-examination otherwise permitted, and, of course, the overall strength of the prosecution's case. . . . Most importantly, we must examine the impact of the . . . evidence on the trier of fact and the result of the trial. . . . [T]he proper standard for determining whether an erroneous evidentiary ruling is harmless should be whether the jury's verdict was substantially swayed by the error. . . . Accordingly, a nonconstitutional error is harmless when an appellate court has a fair assurance that the error did not substantially affect the verdict."

⁷The defendant was eliminated as a contributor to DNA samples that were collected from the passenger side exterior and interior door handles of the victim's car, the passenger side headrest of the car, and the victim's clothes. He was also eliminated as a contributor to DNA samples that were taken from the victim's backpack, with one DNA mixture reported as too complex to conduct a comparison. Additionally, the victim was eliminated as a contributor to DNA samples that were collected from the defendant's clothing, including samples that were taken from the interior collar area, shoulders, sleeves, and chest area of the defendant's jacket, as well as the interior waistband of the defendant's pants.

(Internal quotation marks omitted.) *State v. Edwards*, supra, 325 Conn. 133.

After reviewing the evidence, we are left without a fair assurance that the trial court's failure to exercise its discretion did not substantially affect the jury's verdict. There is no doubt that Gingell's testimony and report were very important to the state's case. Gingell provided the only evidence that connected the firearm that was used on the night of the homicide to the defendant. The video footage in evidence does not show a gun in the defendant's hand, the two eyewitnesses testified that they did not or could not see the defendant carrying anything in his hands, and police officers did not find a gun during the search of the defendant's home or at the crime scene. Indeed, a firearm was never recovered. For the state to prove its charge of murder with a firearm, it needed to demonstrate beyond a reasonable doubt that the defendant caused the death of the victim using a firearm. See General Statutes § 53a-54a (a). Other than Gingell's report and her testimony that one of the three types of particles "commonly associated with" pGSR was found on samples taken from the defendant's clothing, the state adduced no evidence of the defendant's possession or use of a firearm.

Nor do we agree with the state that the extensive cross-examination of Gingell rendered harmless the admission of her testimony. We acknowledge that, through cross-examination and recross-examination, the jury heard testimony that may have cast some doubt on the reliability of the scientific methodology underlying the pGSR evidence. For example, Gingell answered in the affirmative when defense counsel asked whether she was "aware of a dispute among [her] colleagues in the scientific community as to whether . . . one should be reporting something being commonly associated [with pGSR] in the absence of a finding of spherical morphology" Defense counsel also solicited testimony that Gingell could not say whether the particles found on the defendant's clothes were pGSR or whether the particles came

from an environmental source unrelated to a firearm. However, despite this testimony, Gingell maintained that her conclusions were accurate, even asserting on redirect examination that ASTM International's standard guides addressing forensic pGSR analysis provide "guideline[s]" rather than "set standard[s]" and that there is no requirement to consider the size and shape of particles under those guidelines. As we previously have observed, "juries tend to give great credence and weight to what . . . experts say," and "cross-examination and the use of opposing experts do not appear to effectively counter expert testimony, regardless of the logical vulnerability of the initial expert testimony" (Internal quotation marks omitted.) *State v. Raynor*, supra, 337 Conn. 548. We cannot conclude that the cross-examination of Gingell by defense counsel so undercut her testimony that its admission was necessarily harmless. See *id.*

We also are not persuaded that the overall strength of the state's case against the defendant makes the error harmless. The state relies on the video footage to demonstrate the defendant's presence in the vicinity of the homicide, though the defendant's presence was undisputed. It also relies on the video footage and the testimony of Lanza and Brackett to argue that, given the short period of time during which the shooting could have occurred and the lack of evidence that anyone else was in the area at the time of the shooting, the defendant is the only possible suspect. The state also contends that "the impact of Gingell's evidence was blunted by [the evidence of] the defendant's consciousness of guilt" The state contends that the consciousness of guilt evidence was very strong, as the defendant immediately fled the scene of the shooting, cancelled his cell phone account the following day, and repeatedly searched the Internet for information about the homicide. Even taking all of that into account, we conclude that the lack of evidence as to a firearm leaves us without a fair assurance that Gingell's testimony did not substantially affect the jury's verdict. As the defendant's appellate counsel put it at argument before this court, the admission of Gingell's testimony

and report transformed the evidence from placing the defendant in front of Lanza's apartment, looking at the crime scene, to placing him at the crime scene with a gun in his hand. We therefore cannot conclude that the error was harmless.

Accordingly, the defendant is entitled to a new trial. See, e.g., *State v. Raynor*, supra, 337 Conn. 550.

The judgment is reversed and the case is remanded for a new trial.

In this opinion the other justices concurred.
