STATE OF CONNECTICUT *v.* DONALD RAYNOR
(SC 20183)

Robinson, C. J., and Palmer, McDonald,
D'Auria, Mullins and Kahn, Js.*

Syllabus

Argued February 21—officially released December 4, 2020**

Procedural History

Substitute information charging the defendant with the crime of murder, brought to the Superior Court in the judicial district of Hartford and tried to the jury before the court, *Kwak*, *J.*; verdict and judgment of guilty, from which the defendant appealed to this court, which transferred the appeal to the Appellate Court, *Keller*, *Elgo* and *Eveleigh*, *Js.*, which affirmed the judgment of the trial court, and the defendant, on the granting of certification, appealed to this court. *Reversed*; *new trial.*

Andrew P. O'Shea, with whom was *Damon A. R. Kirschbaum*, for the appellant (defendant).

James A. Killen, senior assistant state's attorney, with whom, on the brief, were *Gail P. Hardy*, former state's attorney, and *Patrick J. Griffin*, state's attorney, for the appellee (state).

Maura Barry Grinalds and *Darcy McGraw* filed a brief for the Connecticut Innocence Project et al. as amici curiae.

Lisa J. Steele, assigned counsel, filed a brief for the Connecticut Criminal Defense Lawyers Association as amicus curiae.

Charles D. Ray, *Angela M. Healey*, and *M. Chris Fabricant*, pro hac vice, filed a brief for the Innocence Project, Inc., as amicus curiae.

Opinion

KAHN, J. The defendant, Donald Raynor, appeals from the judgment of the Appellate Court, which affirmed the judgment of conviction, rendered after a jury trial, of the crime of murder in violation of General Statutes § 53a-54a (a).[1] *State* v. *Raynor*, 181 Conn. App. 760, 778, 189 A.3d 652 (2018). The defendant claims that the Appellate Court incorrectly concluded that the trial court had properly (1) denied his motion for a *Porter*[2] hearing on the reliability of ballistics evidence, (2) denied his motion in limine seeking to limit the scope of testimony from the state's firearm and toolmark examiner, and (3) denied the defendant's motion to exclude uncharged misconduct evidence related to a subsequent shooting. As to the first issue, the defendant claims that reports authored by the National Academy of Sciences (NAS)[3] call into question the reliability of methodologies employed in firearm and toolmark examinations and that, as a result, a *Porter* hearing was necessary to determine if such evidence is admissible. Furthermore, the defendant argues that both the trial court and the Appellate Court construed *State* v. *Legnani*, 109 Conn. App. 399, 421, 951 A.2d 674, cert. denied, 289 Conn. 940, 959 A.2d 1007 (2008), too broadly by concluding that a *Porter* hearing on the reliability of firearm and toolmark examinations is never necessary because it is a well established and admissible science. As to the second issue, the defendant argues that, even if the firearm and toolmark examination evidence was admissible without a *Porter* hearing, the trial court improperly denied his motion in limine, which would have required the state's expert, James Stephenson, to clarify that his conclusions that certain bullet casings were fired from a specific firearm were not certainties but merely "more likely than not" to be correct. As to the third issue, the defendant claims that the probative value of evidence related to a subsequent shooting, which was admitted to establish the defendant's identity and to show that he had access to the firearm used in the present case, was outweighed by its prejudicial effect. For the reasons that follow, we conclude that the Appellate Court (1) improperly upheld the trial court's denial of the defendant's motion for a *Porter* hearing on the reliability of ballistics evidence based solely on the holding in *Legnani*, (2) properly upheld the trial court's denial of the defendant's motion in limine, which sought to limit the scope of Stephenson's conclusions, and (3) improperly upheld the trial court's denial of the motion to exclude evidence of uncharged misconduct. We therefore conclude that the defendant is entitled to a new trial and, accordingly, reverse the judgment of the Appellate Court.

The record reveals the following relevant facts and procedural history. The defendant was a member of the Money Green Bedrock (Bedrock) street gang in

Hartford, and the victim, Delano Gray, was a member of a rival street gang, The Avenue, also known as The Ave. Prior to the events giving rise to the present case, the defendant and the victim were involved in two incidents stemming from the rivalry between their gangs. The first incident, which occurred at an unspecified date prior to 2006, involved the victim's firing shots at the defendant and another Bedrock member. The second incident, which occurred approximately one week prior to the events giving rise to the present case, occurred when the victim saw the defendant and another Bedrock member, Jose Rivera, at a restaurant in The Avenue's territory. As the defendant and Rivera were leaving the restaurant, Rivera noticed that the victim was taking a photograph of the defendant's car. Rivera relayed this to the defendant, who responded that "[the victim] had to go," which Rivera understood to mean that "[the victim] had to get killed for what he did."

During the early morning hours of June 18, 2007, the defendant called Rivera and told him that he wanted to "test out [a] .223 [caliber] assault rifle and that [the defendant] wanted to go see if [they] could find any Avenue guys," which Rivera understood to mean they were "gonna go look for some Avenue guys to kill." The defendant had owned that assault rifle for approximately one month, and Rivera had been with the defendant when he purchased it. The defendant picked up Rivera and drove to the back of the defendant's apartment building on Bedford Street, parking next to a nonfunctioning vehicle that belonged to Rivera and was used for "stashing drugs [and] guns . . . ." The defendant put on latex gloves, removed the .223 caliber assault rifle from a bag stored in the trunk of the nonfunctioning vehicle, and loaded the assault rifle with "a big magazine clip." The defendant and Rivera then got back into the functioning vehicle; Rivera drove, and the defendant sat in the backseat with the assault rifle.

Rivera drove the vehicle around certain areas in the north end of Hartford frequented by members of The Avenue. While Rivera was driving on Enfield Street, he told the defendant that he saw the victim standing on the sidewalk engaged in conversation with a woman. At the defendant's instruction, Rivera drove back around the block. As Rivera drove down Enfield Street for the second time, he rolled down the rear driver's side window and slowed the vehicle down to a roll. The defendant hung out of the window and started shooting the assault rifle at the victim. The victim and his female companion attempted to flee, running in different directions, but the victim fell to the ground after taking only about three steps. The defendant kept shooting after the victim fell to the ground, firing at least ten to fifteen times, and then Rivera and the defendant drove away. The victim died as a result of gunshot wounds to his chest and neck.

On July 16, 2008, thirteen months after the Enfield Street murder, the police recovered a .223 caliber Kel-Tec assault rifle in an unrelated investigation after receiving a tip from a confidential informant. In August, 2011, after being arrested for an unrelated homicide, Rivera gave a statement to the police in which he confessed to his involvement in the victim's murder, implicated the defendant as the shooter, and he identified the .223 caliber Kel-Tec assault rifle recovered by the police in July, 2008, as the weapon that the defendant used to shoot the victim. Simultaneously, in August, 2011, the police met with and obtained a written statement from the victim of a shooting on Baltimore Street that occurred on February 16, 2008—a shooting at which Rivera was not present. That individual identified the defendant as the shooter in that crime and stated that he had fired a rifle at her and her partner. Stephenson testified that casings recovered from the crime scenes of the victim's murder on Enfield Street and the subsequent shooting on Baltimore Street were positively identified as having been fired from the .223 caliber Kel-Tec assault rifle that had been recovered by the police.

In 2013, the defendant was charged with murder in violation of § 53a-54a (a), conspiracy to commit murder in violation of General Statutes §§ 53a-48 and 53a-54a (a), and criminal use of a firearm in violation of General Statutes § 53a-216 (a). The defendant's first jury trial, conducted in 2014, ended in a mistrial after the jury was unable to agree on a verdict. At the second trial, conducted in 2015, the state charged the defendant with only one count of murder in violation of § 53a-54a (a). The second jury returned a guilty verdict, and the court sentenced the defendant to sixty years of incarceration with a twenty-five year mandatory minimum.

The defendant subsequently appealed, claiming "that the trial court (1) improperly denied [his] motion in limine to exclude or limit the scope of the testimony of the state's expert witness on firearm and toolmark identification, and (2) abused its discretion by granting the state's motion for uncharged misconduct related to a shooting that occurred approximately eight months after the events of [the present] case." *State* v. *Raynor*, supra, 181 Conn. App. 762. The Appellate Court concluded that the trial court "properly relied upon *Legnani*, and did not abuse its discretion by denying the defendant's motion in limine to exclude or limit Stephenson's testimony." Id., 771. Furthermore, the Appellate Court concluded that the trial court "did not abuse its discretion by admitting the uncharged misconduct evidence related to [a subsequent shooting]." Id., 778. This appeal followed. Additional facts and procedural history will be set forth as necessary.

I

EXPERT BALLISTIC TESTIMONY

We begin with the defendant's claims challenging the admissibility and scope of Stephenson's testimony relating to firearm and toolmark analysis. The following additional facts and procedural history are relevant to the resolution of these claims. In anticipation of testimony by Stephenson at trial, the defendant filed (1) a motion for a *Porter* hearing on the admissibility of firearm and toolmark analysis, and, in the alternative, (2) a motion in limine to limit the scope of Stephenson's conclusions.

The defendant argued in his motion for a *Porter* hearing that the NAS reports called into question the reliability and accuracy of the methodology employed by Stephenson and that there was "relatively little legal accounting" for those reports.[4] The defendant contended that a *Porter* hearing would demonstrate that the methodology used by Stephenson was not scientifically valid and was, therefore, inadmissible. The state opposed the defendant's motion for a *Porter* hearing, arguing that "Connecticut state law firmly holds that the science of firearm and toolmark identification has been so well established that a trial court does not have to conduct a *Porter* hearing prior to admitting such evidence."

In the event that the motion for a *Porter* hearing was denied, or if one were held and resulted in the admission of Stephenson's testimony, defense counsel argued during oral argument on the motion that Stephenson should be restricted to stating only that casings recovered from the crime scenes were "more likely than not" fired from the .223 caliber Kel-Tec assault rifle. Anticipating that Stephenson would testify that "the shell casings recovered from the shooting of [the victim] were fired from the same weapon as the shell casings recovered from the [Baltimore Street shooting] based upon his forensic toolmark analysis of those casings," defense counsel cited to the NAS reports for the proposition that, "[b]ecause not enough is known about the variabilities among individual tools and guns, we are not able to specify how many points of similarity are necessary for a given level of confidence in the result. Sufficient studies have not been done to understand the reliability and repeatability of the methods." (Emphasis omitted; internal quotation marks omitted.) Defense counsel noted that the authors of the NAS reports agreed that "class characteristics are helpful in narrowing the pool of [firearms] that may have left a distinctive mark [on a casing]. Individual patterns from manufacture or from wear might, in some cases, be distinctive enough to suggest one particular source, but additional studies should be performed to make the process of individualization more precise and repeatable."[5] (Emphasis omitted; internal quotation marks omitted.)

On the basis of these observations, defense counsel asked that a "limiting order and instruction, similar to that in [*United States* v. *Glynn*, 578 F. Supp. 2d 567, 574–75 (S.D.N.Y. 2008)], be granted," to permit Stephenson to testify only that a firearms match was "more likely than not." In response, the state claimed that "while the defendant has located a federal judge in the Southern District of New York who might agree with his contention, the appellate courts of . . . Connecticut do not." Following oral arguments, the trial court denied the defendant's motion for a *Porter* hearing and motion in limine, concluding that the forensic science of firearms experts "has been well established, and we have a case, [*Legnani*], which stands for the proposition that this is not a new science. Therefore, a *Porter* hearing is not necessary." The trial court expounded that it had "read the [2009 NAS] article. [The judge] understood [NAS] recommend[ed] some further studies or data collection. That's their recommendation, but, again, the case law in Connecticut is what it is."

Stephenson subsequently testified before the jury that the Connecticut State Forensic Laboratory employed the Association of Firearm and Tool Mark Examiners' (AFTE) theory of identification, which is generally accepted in the science of firearm and toolmark identification, and he explained the tenets of that theory. He explained that "we know that, through the theory of identification, that no two tools are—have left—will leave an examiner to the point where he would make a false identification based on his examination." Stephenson proceeded to testify that twelve of the fifteen casings recovered from the Enfield Street murder were "positively matched" to the .223 caliber Kel-Tec assault rifle and that the remaining three casings had insufficient marks found for the purpose of identification. In addition, Stephenson testified that seventeen of the twenty-two casings recovered from the Baltimore Street shooting were "positively identified as being fired from the Kel-Tec rifle" and that the remaining five casings did not have sufficient marks to make a comparison for identification. During an extensive cross-examination, "[d]efense counsel . . . highlighted the ways in which firearm and toolmark identification does not follow precisely the scientific method—i.e., by not protecting against confirmation bias—and that the [AFTE] theory of identification is not a completely objective theory." *State* v. *Raynor*, supra, 181 Conn. App. 768. Stephenson also acknowledged that he was aware of the 2009 NAS report and conceded that some—but not all—of the criticisms of firearm and toolmark analysis were valid.

On appeal to the Appellate Court, the defendant claimed that the trial court "abused its discretion by denying his motion in limine and request for a *Porter* hearing. The defendant argue[d] that the [NAS reports]

establish that the methodology underlying firearm and toolmark identification is not reliable, and, as a result, the [trial] court should have precluded Stephenson from opining that particular cartridge casings positively matched the firearm in evidence. In the alternative, the defendant argue[d] that the [trial] court should have limited Stephenson's testimony so that he could opine only that his conclusions were 'more likely than not . . . correct.' " *State* v. *Raynor*, supra, 181 Conn. App. 768. "The state argue[d] that the [trial] court properly relied upon [*Legnani*] in concluding that the admissibility of firearm and toolmark identification evidence is well established and, therefore, properly denied the defendant's motion." Id.

The Appellate Court concluded that "*Legnani* is controlling precedent on the issue of whether the science of firearm and toolmark identification is well established, and thus binds our resolution of this claim." [6] Id., 770. The Appellate Court acknowledged that *Legnani* predated the NAS reports but clarified that the reports "do not overrule or otherwise abrogate the existing case law in this state; nor do the [United States] District Court cases or the cases from other states that the defendant has cited in support of his claim. More importantly, the defendant did not proffer his own expert witness to testify that the science of firearm and toolmark identification is not reliable. The evidence admitted during the cross-examination of Stephenson included the flaws and criticisms of firearm and toolmark identification. The jury was free to give this evidence as much or as little weight as it saw fit." Id., 771. For these reasons, the Appellate Court upheld the trial court's denial of the defendant's motion for a *Porter* hearing and motion in limine, holding that "[a] *Porter* hearing to determine the validity of firearm and toolmark identification was not required. The state had to establish only that the firearm and toolmark evidence was relevant, which it did." Id.

The Appellate Court acknowledged, however, "that there has been some evolvement in the field of firearm and toolmark identification since [it] decided *Legnani*." Id., 770 n.4. Despite its familiarity with the NAS reports, the Appellate Court highlighted that "[d]efense counsel . . . extensively cross-examined Stephenson regarding the recent criticisms of firearm and toolmark identification, during which Stephenson acknowledged the validity of at least some of those criticisms. Even if [the Appellate Court] were inclined to review the scientific validity of firearm and toolmark identification—and therefore [were] inclined to review the holding of *Legnani*—the circumstances of the [case did] not warrant a departure from [its] precedent. The defendant [had] not proffered his own expert to rebut the notion that firearm and toolmark evidence is sufficiently reliable as to be admitted without first requiring a *Porter* hearing. Therefore, [the Appellate Court] adhere[d] to [its] prec-

edent that holds that the admissibility of firearm and toolmark identification is well established." Id., 770–71 n.4. This appeal followed.

A

Porter Hearing

In the present case, the defendant claims that the Appellate Court improperly upheld the trial court's denial of his motion for a *Porter* hearing because both the trial court and the Appellate Court interpreted *Legnani* too broadly when each determined that it was bound by that precedent, notwithstanding the fact that the defendant had highlighted new evidence and case law that questioned the reliability of the methodology used in firearm and tookmark analysis. The defendant claims that such a broad interpretation of *Legnani* "would result in trial courts admitting false testimony merely on the basis that the methodologies supporting that testimony, which we now know to be unreliable and unvalidated, were admissible at some point in the past." In response, the state claims that "[t]he trial court properly concluded that *Legnani* remained good law, even after the [NAS reports], because courts in Connecticut and throughout the nation, including those which have conducted [*Porter*] hearings, have overwhelmingly reaffirmed that expert testimony regarding firearm and toolmark identification is admissible, notwithstanding the concerns expressed in that report." We agree with the defendant that the trial court's exclusive reliance on *Legnani* in assessing the request for a *Porter* hearing was erroneous.

"It is axiomatic that [t]he trial court's ruling on the admissibility of evidence is entitled to great deference. In this regard, the trial court is vested with wide discretion in determining the admissibility of evidence. . . . Accordingly, [t]he trial court's 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." (Citation omitted; internal quotation marks omitted.) *State* v. *Sorabella*, 277 Conn. 155, 214, 891 A.2d 897, cert. denied, 549 U.S. 821, 127 S. Ct. 131, 166 L. Ed. 2d 36 (2006). Implicit in that well established principle, however, is the requirement that the trial court exercise its discretion. "Where . . . the trial court is properly called upon to exercise its discretion, its failure to do so is error." (Internal quotation marks omitted.) *Higgins* v. *Karp*, 243 Conn. 495, 504, 706 A.2d 1 (1998). 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 harmless." *State* v. *Martinez*, 143 Conn. App. 541, 557, 69 A.3d 975 (2013), rev'd on other grounds, 319 Conn. 712, 127 A.3d 164 (2015). "In order

to establish the harmfulness of a trial court ruling, the defendant must show that it is more probable than not that the improper action affected the result." (Internal quotation marks omitted.) *State* v. *Torres*, 85 Conn. App. 303, 328, 858 A.2d 776, cert. denied, 271 Conn. 947, 861 A.2d 1179 (2004).

In the present case, it is apparent from the record that the trial court failed to exercise its discretion when it denied the defendant's motion for a *Porter* hearing. The trial court did not consider the NAS reports that the defendant cited in his motion; it noted that it had reviewed the reports but that it was bound by *Legnani* to find that the science of firearm and toolmark identification is well established. Similarly, the Appellate Court stated that "*Legnani* is controlling precedent on the issue of whether the science of firearm and toolmark identification is well established, and thus binds [its] resolution of [the defendant's] claim." *State* v. *Raynor*, supra, 181 Conn. App. 770. We conclude that the trial court failed to exercise—and, therefore, abused—its discretion to determine whether the criticisms of firearm and toolmark analysis contained in the NAS reports and highlighted by the defendant cast substantial enough doubt on whether the science of that field remains well established to warrant a *Porter* hearing.[7]

A mere cursory look at the ramifications of a trial court's being absolutely bound by *Legnani* illustrates why such an approach would be impractical. Trial court judges serve a gatekeeping function with respect to the admissibility of expert testimony, and, in performing that function, they assess the validity of the methodologies underlying proffered scientific evidence. See *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); see also *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589–90, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993). Over two decades ago, this court held that "an admissibility test for scientific evidence premised *solely* on its 'general acceptance' is conceptually flawed," thereby rejecting the then applicable *Frye*[8] standard and adopting the *Daubert* approach to the admissibility of scientific evidence.[9] (Emphasis in original.) *State* v. *Porter*, supra, 75–76. This court noted, however, that "some scientific principles have become so well established than an explicit *Daubert* analysis is not necessary for admission of evidence thereunder. By this, we do not mean to reestablish the *Frye* general acceptance test. We do acknowledge, however . . . that a very few scientific principles are so firmly established as to have attained the status of scientific law, such as the laws of thermodynamics, [and that such principles] properly are subject to judicial notice . . . . Evidence derived from such principles would clearly withstand a *Daubert* analysis, and thus may be admitted simply on a showing of relevance." (Citation omitted; internal quotation marks omitted.) Id., 85 n.30.

The Appellate Court has held that a trial court did not abuse its discretion where it concluded that ballistics and firearms analysis fell into that category of scientific principles so firmly established as to negate the need for a *Porter* hearing. *State* v. *Legnani*, supra, 109 Conn. App. 419–21. Science, however, 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. See, e.g., *Bone Shirt* v. *Hazeltine*, 461 F.3d 1011, 1026 (8th Cir. 2006) (Gruender, J., concurring in the judgment) ("Science evolves, and scientific methods that were once considered unassailable truths have been discarded over time. Unreliable testimony based upon those outdated theories and methods must be discarded as well, lest scientific stare decisis ensure that such theories survive only in court."); cf. *Upjohn Co.* v. *Finch*, 422 F.2d 944, 951 (6th Cir. 1970). The 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—which requires judges to regulate carefully which categories of scientific evidence are sufficiently reliable to present to the fact finders—into one of routine mandatory admission of such evidence, regardless of advances in a particular field and its continued reliability.

Having concluded that it was an abuse of discretion for the trial court to deny the defendant's motion for a *Porter* hearing without considering the proffered evidence challenging the methodology supporting toolmark and firearm analysis, we must now determine whether that error was harmful. "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." (Internal quotation marks omitted.) *State* v. *Edwards*, 325 Conn. 97, 133, 156 A.3d 506 (2017).

After reviewing the evidence in the present case, we lack a fair assurance that the trial court's admission of Stephenson's testimony did not substantially affect the verdict. There is no doubt that Stephenson was important to the state's case; his testimony was the only objective evidence that connected the casings found at the Enfield Street murder with the .223 caliber Kel-Tec assault rifle recovered by the police. There can be little doubt that the jurors likely found Stephenson's expert opinion highly convincing in light of the technical nature of his analysis and his various credentials.[10] See, e.g., *State* v. *Jackson*, 334 Conn. 793, 819, 224 A.3d 886 (2020) ("[t]here can be little doubt that jurors would have viewed as highly convincing [the] expert opinion; the testimony was presented in technical terms and used impressive visual displays to convey important information, and it came from a law enforcement officer unconnected to the department that investigated the crime").

The exclusion of Stephenson's expert testimony would have made the state's overall case against the defendant much weaker because Stephenson corroborated the testimony of Rivera, the only witness to identify the defendant as the shooter. Without Stephenson's expert testimony, the state would have relied primarily on Rivera's testimony related to the Enfield Street murder.[11] Rivera was also the sole witness to testify that the defendant and the victim had a confrontation in the week leading up to the murder, to identify the defendant as the shooter on Enfield Street, to confirm that the .223 caliber Kel-Tec assault rifle was the same one used by the defendant, and to acknowledge that the defendant knew the police had subsequently recovered the murder weapon. Rivera, however, had both a motive to testify falsely and credibility issues. See *State* v. *Jackson*, supra, 334 Conn. 819–20. Rivera testified that he was involved with the victim's murder on Enfield Street in June, 2007, but he did not provide information to the police about that murder until August, 2011, more than four years later. In addition, when Rivera finally did speak to the police about the Enfield Street murder, it was only after he had been arrested in connection with an incident that occurred on July 1, 2011. Rivera confessed his role in the July 1, 2011 incident and provided a written statement to the police. He also provided additional statements related to several other incidents in Hartford, one of which was the Enfield Street murder. At trial, Rivera testified that he had been sentenced as a result of the July 1, 2011 incident and was serving a total effective sentence of forty-two years of incarceration for convictions of murder, conspiracy to commit murder, and a weapons charge. In addition, the jury heard Rivera testify that he was arrested pursuant to a warrant on November 5, 2013, for his involvement in the Enfield Street murder and had pending charges of accessory to commit murder, conspiracy to commit murder, and criminal possession of a firearm. Rivera

also had a number of other pending charges that, when combined, added up to several decades of potential jail time.[12]

In order to testify at the defendant's trial, Rivera entered into a written cooperation agreement with the state, in which he agreed to disclose truthfully any and all matters related to his criminal activity, and the criminal activity of others with whom he was involved. In exchange, the state agreed that, if Rivera did so when called upon, it would agree to consent to a hearing for sentence modification before a judge of the Superior Court. In addition, the state agreed that it would recommend that any sentences Rivera received for his pending charges run concurrently to the sentence of forty-two years that he was serving.

Nor did the extensive cross-examination of the ballistics expert render the admission of his testimony harmless. Defense counsel rigorously cross-examined Stephenson on the methodology, critiques, and partial subjectivity of firearm and toolmark analysis, including questions about his knowledge of, and the conclusions from, the NAS reports. In this manner, the jury heard testimony that cast at least some doubt on the reliability of the methodology. Stephenson, however, consistently explained that while the NAS reports contained suggestions for improving the methodology—some of which he acknowledged were sound—the criticisms did not undermine its scientific validity. Throughout his cross-examination, Stephenson maintained that his conclusions were accurate. See, e.g., *State* v. *Edwards*, supra, 325 Conn. 134–35 (rigorous cross-examination of expert by defense counsel led to admission that expert could not guarantee accuracy of maps or determine exact location of defendant's cell phone, contributing to determination that trial court's improper admission of certain testimony regarding cell phone data constituted harmless error). In addition, juries "tend to give great credence and weight to what . . . experts say," and the defendant sought to have this expert testimony excluded, thereby preventing the jury from hearing Stephenson testify at all. "Symposium on Forensic Expert Testimony, *Daubert*, and Rule 702," 86 Fordham L. Rev. 1463, 1508 (2018); see also D. McQuiston-Surrett & M. Saks, "Communicating Opinion Evidence in the Forensic Identification Sciences: Accuracy and Impact," 59 Hastings L.J. 1159, 1189 (2007) ("unfortunately, 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"). We therefore cannot conclude that the rigorous cross-examination mounted by defense counsel so undercut Stephenson's testimony that its admission was necessarily harmless.

The state's sole claim that any error by the trial court is harmless is restricted to an argument regarding moot-

ness. Specifically, the state argues that "this issue already has been examined by a Connecticut Superior Court after a *Porter* hearing; [*State* v. *Terrell*, Superior Court, judicial district of New Haven, Docket No. CR-17-0179563-S (March 21, 2019) (68 Conn. L. Rptr. 323)]; and its conclusions in support of admissibility mirror those reached following similar hearings by courts in other jurisdictions."[13] Relying on *State* v. *Balbi*, 89 Conn. App. 567, 576–77, 874 A.2d 288, cert. denied, 275 Conn. 919, 883 A.2d 1246 (2005),[14] the state argues that "[a] determination by one court that a methodology satisfies the *Porter* test renders [it] unnecessary for other courts to repeat the process. . . . There is no compelling reason to put the state to the burden of having to reestablish, in case after case, the same proposition. Requiring our trial judges to repeatedly hold *Porter* hearings would serve no legitimate purpose and would needlessly squander judicial resources." (Citations omitted; internal quotation marks omitted.) Although, as discussed subsequently in this opinion, we agree that a *Porter* hearing is not necessary in every trial in which scientific evidence is presented, that fact does not mean that a *Porter* hearing held by one trial court is binding on another. See, e.g., *In re Emma F.*, 315 Conn. 414, 432–33, 107 A.3d 947 (2015) ("[A] trial court decision does not establish binding precedent. . . . Indeed, under the law of the case doctrine, the trial court's decision need not even be followed by a judge making a subsequent decision in [that] very case." (Citations omitted; internal quotation marks omitted.)). Although the Superior Court in *Terrell* considered the same evidence presented by the defendant in the present case in his motion for a *Porter* hearing; see footnote 13 of this opinion; *Terrell* was also not appealed to, or reviewed by, this court. The state's argument that the result of the *Porter* hearing in *Terrell* renders the issue presented in this appeal moot must, therefore, fail. For the foregoing reasons, we conclude that the error was harmful and that the defendant is entitled to a new trial.

This court's conclusion that a trial court must exercise its discretion to at least consider evidence presented by the defendant when deciding whether to grant a motion for a *Porter* hearing does not mean that a defendant's challenge, no matter how slight, to an established methodology warrants a full *Porter* hearing. We provide the following examples to illustrate the gatekeeping function of the trial courts in light of this decision. When a trial court considers a defendant's motion for a *Porter* hearing, it may decide that the methodology prior to that point either (1) has been deemed so well established so as to not warrant a *Porter* hearing, as was the case with firearm and toolmark analysis at the time of the defendant's trial, or (2) has been subject to a *Porter* hearing by another trial court. Under both of these scenarios, the trial judge has several options depending on the strength of the evidence presented

in a motion for a *Porter* hearing.

Under the first scenario, the trial court begins from the premise that the methodology is well established and that, as a result, a *Porter* hearing is not necessary. It must then consider the evidence presented by the defendant to determine whether that well established methodology has been sufficiently challenged to warrant a *Porter* hearing. The trial court has the discretion to deny the motion, 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.[15] Although, under this scenario, the defendant bears the heavy burden of challenging a potentially lengthy scientific and legal history of the reliability of the methodology without a *Porter* hearing, that burden is not insurmountable. This was recently evidenced when, despite the Appellate Court's decision in *Legnani*, a Superior Court granted a *Porter* hearing on firearm and toolmark analysis. *State* v. *Terrell*, supra, 68 Conn. L. Rptr. 324; see footnote 13 of this opinion.

Under the second scenario, once any trial court has held a *Porter* hearing on a particular methodology, then judges have slightly different options when considering motions for subsequent *Porter* hearings. If a party highlights the same evidence challenging a methodology as was evaluated in a previous *Porter* hearing, the trial court may—but is not required to—take judicial notice of the previous hearing and consider the prior court's analysis of the methodology and conclusion as to its reliability when exercising its discretion to grant or deny the defendant's motion for a subsequent *Porter* hearing.[16] If a party highlights new evidence regarding the reliability of the methodology that was not evaluated in the previous *Porter* hearing, the trial court may—but, again, is not required to—take judicial notice of the previous hearing and consider the prior court's analysis of the methodology and conclusion in conjunction with the additional evidence presented in determining whether to grant or deny a subsequent motion for a *Porter* hearing.[17]

For the foregoing reasons, we conclude that the trial court improperly denied the defendant's motion for a *Porter* hearing based solely on *Legnani*, without considering new evidence offered by the defendant, and we do not have a fair assurance that this error was not harmless. As a result, the defendant is entitled to a new trial.

B

Scope of Testimony

We address the defendant's second claim because

it is likely to arise on remand. Specifically, the defendant claims that the Appellate Court improperly upheld the trial court's denial of his motion in limine to proscribe the scope of Stephenson's testimony, highlighting that at least one Superior Court in this state, as well as other courts across the country, have limited the opinions of firearm and toolmark examiners in a variety of manners, "including precluding them from stating that expelled casings or bullets are matched to a firearm to the exclusion of all other firearms, requiring them to clarify that the likelihood of their conclusions being true is 'more likely than not,' or requiring them to clarify that the certainty of their opinions was limited in some other manner." (Footnotes omitted.) The defendant argues that such a limitation is particularly appropriate as recent decades have ushered in a "greater reliance on interchangeable parts in manufacturing [that] has substantially altered the degree of unique features in the firing pins and other components of firearms," thereby eroding the fundamental assumptions of firearm and toolmark examinations so as to render them insufficiently reliable to permit match statements. The defendant further requests that, even if this court were to conclude that it was permissible for firearm and toolmark experts to testify that a particular casing was fired from a specific firearm, we use our supervisory authority to limit the scope of such testimony in Connecticut courts. In response, the state claims that the specific restriction requested by the defendant—"more likely than not"—is arbitrary, inaccurate, and unsupported by the law generally applicable to expert testimony. The state concedes, however, that "it may be true that the methodology employed by firearm and toolmark identification experts would not currently support any representation that their conclusions are 100 percent infallible . . . ." Furthermore, if this court were to adopt a rule proscribing the language that an expert must use in stating his opinion that a particular casing was fired from a specific firearm, the state indicated that it would support a requirement that the expert phrase his opinion in terms of "a reasonable degree of certainty" or "a practical certainty . . . ." (Internal quotation marks omitted.) We agree with the state.

We begin with the applicable standard of review. "[A] trial court retains broad discretion in ruling on the qualifications of expert witnesses and [in] determining whether their opinions are relevant." *State* v. *Guilbert*, 306 Conn. 218, 257, 49 A.3d 705 (2012). "[S]uch testimony is admissible if the trial court determines that the expert is qualified and that the proffered testimony is relevant and would aid the jury." *State* v. *Williams*, 317 Conn. 691, 702, 119 A.3d 1194 (2015). When a party seeks to exclude or limit the scope of an expert's testimony, the burden is on the party who files the motion in limine to show that the challenged remarks were

prejudicial in light of the entire proceeding. Cf. *State* v. *Binet*, 192 Conn. 618, 628, 473 A.2d 1200 (1984). "We review a trial court's decision to preclude expert testimony for an abuse of discretion. . . . We afford our trial courts wide discretion in determining whether to admit expert testimony and, unless the trial court's decision is unreasonable, made on untenable grounds . . . or involves a clear misconception of the law, we will not disturb its decision." (Internal quotation marks omitted.) *State* v. *Williams*, supra, 701–702.

In the present case, defense counsel requested that the trial court restrict Stephenson to using very specific language that connoted a narrow scientific conclusion but did not provide the court with sufficient information to inform its decision. With respect to limiting the scope of Stephenson's testimony, the defendant's motion in limine simply requested that "a limiting order and instruction, similar to that in *Glynn*, be granted" without providing additional details as to what that instruction would entail, why it would be appropriate for the trial court to adopt that standard, or how failing to limit the scope of Stephenson's testimony would prejudice the defendant. During pretrial argument on the motion, defense counsel urged the trial court to adopt the approach used in *Glynn* and to conclude that, due to the shortcomings of firearm and toolmark analysis described in the NAS reports, it should limit Stephenson to testifying only that it was "more likely than not" that the bullets were fired from the same gun. In addition, in both the motion in limine and oral arguments on the motion, the defense relied on a single United States District Court decision from the Southern District of New York to support its argument. Given the highly proscribed language requested, combined with the scant information and lack of case law provided in support of the defendant's motion, we conclude that the trial court's denial of the motion was not an abuse of discretion. See, e.g., *State* v. *Binet*, supra, 192 Conn. 624 ("[t]he record before the court . . . could hardly provide it with a solid basis upon which to grant the defendant's motion").

We pause briefly to qualify our holding. Our conclusion that the trial court in the present case properly declined to limit the scope of Stephenson's testimony to only "more likely than not" should not be taken as blanket approval of unlimited testimony from firearm and toolmark experts. As both the defendant and the state acknowledge, a substantial number of courts addressing this issue, including the United States Court of Appeals for the Second Circuit, have prohibited experts from testifying that a bullet or casing matched a specific firearm with absolute certainty or to the exclusion of all other firearms. See, e.g., *United States* v. *Gil*, 680 Fed. Appx. 11, 13–14 (2d Cir. 2017); *United States* v. *Diaz*, Docket No. CR-05-00167 (WHA), 2007 WL 485967, *1 (N.D. Cal. February 12, 2007). These

courts, however, do not agree on what language is appropriate. Options include requiring an expert to state that his degree of certainty is only "more likely than not"; (internal quotation marks omitted) *United States* v. *Glynn*, supra, 578 F. Supp. 2d 574–75; that the identification is to "a reasonable degree of certainty"; *United States* v. *Monteiro*, 407 F. Supp. 2d 351, 355 (D. Mass. 2006); that the identification is to "a practical certainty"; (internal quotation marks omitted) *United States* v. *McCluskey*, Docket No. 10-2734 (JCH), 2013 WL 12335325, *10 (D.N.M. February 7, 2013); that the identifying characteristics on two items are "consistent with" each other (internal quotation marks omitted); *United States* v. *Johnson*, Docket No. 16 Cr. 281 (PGG), 2019 WL 1130258, *20 (S.D.N.Y. March 11, 2019); that the recovered firearm "cannot be excluded as the source" of the recovered casing; *United States* v. *Shipp*, 422 F. Supp. 3d 762, 783 (E.D.N.Y. 2019); or that the expert be requested to describe only similar and distinguishing features without characterizing a conclusion. *United States* v. *Green*, 405 F. Supp. 2d 104, 108–109 (D. Mass. 2005). At least one Connecticut trial court has prohibited a firearm and toolmark expert from testifying that "the likelihood that a firearm other than [the one] recovered at the crime scene could have fired the recovered [subject] casing is so remote as to be considered a practical impossibility." (Internal quotation marks omitted.) *State* v. *Terrell*, supra, 68 Conn. L. Rptr. 327. In addition, the state concedes that testifying to the certainty of a match "to the exclusion of all others" would not be appropriate and that it has no objection to a standard requiring an expert to limit his conclusions to either "a reasonable degree of certainty" or "a practical certainty . . . ." (Internal quotation marks omitted.) The defendant asks this court to exercise its supervisory authority[18] to limit the scope of testimony from firearm and toolmark experts. Although we decline to do so, our decision does not preclude trial courts from imposing appropriate limits on such expert testimony when deemed necessary.

For the foregoing reasons, we conclude that the trial court properly denied the defendant's motion in limine to limit the scope of Stephenson's testimony to a "more likely than not" standard.

II

UNCHARGED MISCONDUCT

Although our conclusion in part I A of this opinion is dispositive of the present appeal, in the interest of judicial economy, we address the defendant's claim that the trial court improperly admitted uncharged misconduct because we conclude the issue is likely to arise on remand. The following additional facts and procedural history are relevant to the resolution of this claim. Prior to the start of trial, the state filed a motion in which it sought permission to offer evidence of uncharged

misconduct related to the Baltimore Street shooting in order to prove identity and means. Defense counsel opposed the motion, claiming that evidence of the Baltimore Street shooting was surplus and prejudicial in light of the fact that Rivera would provide in court identifications of both the defendant and the firearm used in the Enfield Street murder. Defense counsel further argued that testimony indicating that the defendant may have used the same gun in the subsequent Baltimore Street shooting was not relevant to the present case and served only to implicate him in a separate, unrelated crime. Following argument, the trial court granted the state's motion for permission to offer evidence of uncharged misconduct, concluding that the evidence fell within the identity and means exceptions under § 4-5 (c) of the Connecticut Code of Evidence.

At trial, the state proceeded to introduce evidence of the Baltimore Street shooting, primarily through the testimony of Deborah Parker, the victim of that crime. Parker testified that, at approximately 2:30 a.m. on February 16, 2008, she and her partner, Darryl Spence, returned to their residence on Baltimore Street in Hartford, where they lived with two of their sons. As Parker and Spence got out of their vehicle, which belonged to Parker's oldest son, who did not live at the residence on Baltimore Street, Parker noticed two men walking on the street. As the men approached, Parker saw the taller of the two men fire a handgun in her direction. Then, the shorter of the two men fired a rifle in her direction, but she could not identify the specific weapon used. Parker saw the faces of both shooters illuminated by a streetlight as she took cover underneath a vehicle, and Spence ran away to hide elsewhere. Even though at least twenty-nine shots had been fired, neither Parker nor Spence was injured.

The police responded to the Baltimore Street shooting, but Parker declined to provide a written statement about the incident, and, at that time, she did not know the identity of the shooters and was not confident that she would be able to identify them in the future. Later that morning, Parker walked through her kitchen as her sons were looking at photographs on the computer from a concert they attended the night before and discussing a fight they got into at that concert. Parker recognized the shooters in the photographs, and her sons provided the first name or nickname for each of the men she identified, including the defendant. Parker called the police and told them where they could find the photographs, but indicated that she did not know the shooters' full names and declined to file a written statement. The police never got back to Parker, and she did not follow up thereafter. In April, 2011, over three years after the Baltimore Street shooting, Parker's oldest son was murdered in an unrelated incident. Then, on August 24, 2011, Parker was approached by the police to discuss the Baltimore Street shooting. At that

time, Parker identified both shooters from a photographic array and learned the defendant's last name from the police; she then signed a written statement regarding the Baltimore Street shooting. Parker was not aware of the victim's murder on Enfield Street and had never heard his name.

In addition, Stephenson testified regarding the casings that were recovered from the Baltimore Street shooting. Of the twenty-two .223 caliber casings recovered from the crime scene, Stephenson positively identified seventeen as having been fired from the recovered Kel-Tec assault rifle, the same weapon that Stephenson testified matched the casings from the Enfield Street murder and that Rivera identified as having been used by the defendant in that crime. See part I of this opinion. Stephenson's testimony, combined with Parker's, established that eight months following the Enfield Street murder, the defendant was identified as having been involved in the Baltimore Street shooting using a weapon that was matched through ballistics evidence to the weapon used in the Enfield Street murder, which was subsequently recovered five months later through an unrelated investigation.

On appeal to the Appellate Court, the defendant argued that the probative value of the uncharged misconduct evidence was outweighed by the risk of unfair prejudice. *State* v. *Raynor*, supra, 181 Conn. App. 772. Specifically, the defendant argued that "the evidence [was] more prejudicial than probative because Parker's identification of the defendant was exceedingly unreliable, that the similarities between the charged and uncharged conduct [rendered the] admission of the uncharged misconduct overly prejudicial, and that the uncharged misconduct painted the defendant as a deranged gunman." (Internal quotation marks omitted.) Id., 774. The state argued that the trial court properly admitted the evidence to establish identity and means. Id., 772. The Appellate Court reasoned that, "[a]lthough the facts of the uncharged misconduct involved the defendant attempting to shoot Parker and Spence, [it was] much less severe than [that] of the charged conduct, and, therefore, admission of the uncharged misconduct evidence cannot be said to have unduly aroused the jurors' emotions."[19] Id., 778. "Additionally, the [trial] court . . . gave the jury limiting instructions on three occasions . . . . These . . . instructions provided, inter alia, that the uncharged misconduct evidence was being admitted solely to show or establish [the] identity of the person who committed the crimes alleged . . . and the availability of the means to commit those crimes." (Internal quotation marks omitted.) Id., 777. Accordingly, the Appellate Court concluded that the trial court had not abused its discretion in determining that the probative value of the uncharged misconduct was not outweighed by the risk of unfair prejudice. Id., 777–78. This appeal followed.

In the present case, the defendant claims that the Appellate Court incorrectly upheld the trial court's admission of uncharged misconduct related to the Baltimore Street shooting because the "tremendous prejudicial impact of the prior misconduct evidence overwhelmed its minimal probative value." In response, the state claims that the trial court's ruling that the probative value of the Baltimore Street shooting outweighed its prejudicial impact was neither so arbitrary as to vitiate logic, nor based on improper or irrelevant factors.[20] Specifically, the state highlights that this court has recognized the probative value of evidence when a defendant used the same weapon in another crime, and that this court has observed that there is a reduced risk of unduly arousing the jurors' emotions when the severity of the uncharged misconduct is less than the severity of the crime at issue. On the basis of the evidence contained within the record presently before us, we agree with the defendant that the trial court incorrectly admitted the challenged evidence because its prejudicial impact outweighed its probative value.

"[A]s a general rule, evidence of prior misconduct is inadmissible to prove that a criminal defendant is guilty of the crime of which the defendant is accused. . . . Such evidence cannot be used to suggest that the defendant has a bad character or a propensity for criminal behavior." (Internal quotation marks omitted.) *State* v. *Collins*, 299 Conn. 567, 582, 10 A.3d 1005, cert. denied, 565 U.S. 908, 132 S. Ct. 314, 181 L. Ed. 2d 193 (2011). "The well established exceptions to the general prohibition against the admission of uncharged misconduct are set forth in § 4-5 [c] of the Connecticut Code of Evidence, which provides in relevant part that '[e]vidence of other crimes, wrongs or acts of a person is admissible . . . to prove intent, identity, malice, motive, common plan or scheme, absence of mistake or accident, knowledge, a system of criminal activity, or an element of the crime, or to corroborate crucial prosecution testimony.' " Id., 583. "We have developed a two part test to determine the admissibility of such evidence. First, the evidence must be relevant and material to at least one of the circumstances encompassed by the exceptions [set forth in § 4-5 (c) of the Connecticut Code of Evidence].[21] . . . Second, the probative value of the evidence must outweigh its prejudicial effect. . . . Because of the difficulties inherent in this balancing process, the trial court's decision will be reversed only whe[n] abuse of discretion is manifest or whe[n] an injustice appears to have been done. . . . On review by this court, therefore, every reasonable presumption should be given in favor of the trial court's ruling." (Footnote added; internal quotation marks omitted.) Id., 582.

"In determining whether the prejudicial effect of otherwise relevant evidence outweighs its probative value, we consider whether: (1) . . . the facts offered may

unduly arouse the [jurors'] emotions, hostility or sympathy, (2) . . . the proof and answering evidence it provokes may create a side issue that will unduly distract the jury from the main issues, (3) . . . the evidence offered and the counterproof will consume an undue amount of time, and (4) . . . the defendant, having no reasonable ground to anticipate the evidence, is unfairly surprised and unprepared to meet it." (Internal quotation marks omitted.) Id., 586–87.

This court has repeatedly held that "[t]he prejudicial impact of uncharged misconduct evidence is assessed in light of its relative 'viciousness' in comparison with the charged conduct." *State* v. *Campbell*, 328 Conn. 444, 522–23, 180 A.3d 882 (2018); see also *State* v. *Collins*, supra, 299 Conn. 588 ("[u]ncharged misconduct evidence has been held not unduly prejudicial when the evidentiary substantiation of the vicious conduct, with which the defendant was charged, far outweighed, in severity, the character of his prior misconduct" (internal quotation marks omitted)). The rationale behind this proposition is that the jurors' emotions are already aroused by the more severe crime of murder, for which the defendant is charged, and, thus, a less severe, uncharged crime is unlikely to arouse their emotions beyond that point. The question of whether the evidence is unduly prejudicial, however, does not turn solely on the relative severity of the uncharged misconduct. Instead, prejudice is assessed on a continuum—on which severity is a factor-—but whether that prejudice is undue can only be determined when it is weighed against the probative value of the evidence.

In the present case, the Baltimore Street shooting was a less severe crime than the Enfield Street murder solely due to the fact that neither Parker nor Spence was hit by one of the dozens of shots fired. The Baltimore Street shooting and the Enfield Street murder, however, shared other common characteristics, including individuals being shot at by assailants outside of their own homes. Each incident involved two people, one male and one female, who were currently in, or had recently been in, a romantic relationship, as opposed to groups of friends or associates. These shootings each occurred in the middle of the night, involved dozens of shots being fired, and ended with the assailants fleeing the scene. While these two incidents were not identical, the similarities cannot be dismissed as irrelevant, and, together, they increase the risk of undue prejudice. See, e.g., *State* v. *Artieri*, 206 Conn. 81, 87, 536 A.2d 567 (1988) ("[w]here the prior crime is quite similar to the offense being tried, a high degree of prejudice is created and a strong showing of probative value would be necessary to warrant admissibility" (internal quotation marks omitted)).

In addition, evidence of the Baltimore Street shooting was introduced through the testimony of Parker, the

victim of that crime, and her testimony was not limited only to the fact that there was a shooting, with no other details regarding the surrounding events. See *State* v. *Collins*, supra, 299 Conn. 589 ("we find significant the trial court's efforts to have the prosecution admonish its witnesses that any testimony about the [previous uncharged misconduct] was to be limited only to the fact that there was a shooting"). Instead, Parker testified in detail about the shooting, including her feelings of being scared and her exact movements during the shooting, and she detailed her initial efforts to follow up with the police. Parker also described events beyond the Baltimore Street shooting. She suggested that her sons and the defendant had been involved in an altercation at a concert the night before and revealed that her oldest son was murdered shortly before she spoke to the police again in August, 2011. While none of these details in isolation is determinative of whether the evidence is unduly prejudicial,[22] when combined, they could arouse the jurors' emotions and require a higher level of probative value to overcome the prejudicial impact.[23]

The probative value of the Baltimore Street shooting was too low to overcome its prejudicial impact. The Baltimore Street shooting occurred eight months after the Enfield Street murder. There was no evidence to suggest that the Baltimore Street shooting was motivated by or related to the earlier Enfield Street murder. They were separate shootings and, with the exception of the defendant, involved different participants and unrelated victims. Parker's testimony relating to the Baltimore Street shooting was admitted to prove that the defendant had been involved in this separate, subsequent gun related crime, where the shell casings matched the .223 caliber Kel-Tec assault rifle. Evidence that the defendant was involved in a shooting in which he allegedly used the same weapon only minimally increased the probability that he was the shooter who used that weapon eight months prior during the Enfield Street murder. This connection is further eroded by the fact that the .223 caliber Kel-Tec assault rifle was not recovered at the scene of the Baltimore Street shooting but, instead, five months later from a different location following a lead provided by a confidential informant. Cf. *State* v. *Collins*, supra, 299 Conn. 570–76.[24] The state did not need to introduce evidence of the Baltimore Street shooting to connect the defendant to the .223 caliber Kel-Tec assault rifle used in the Enfield Street murder that the police subsequently recovered from a different location. The state presented direct evidence from Rivera connecting the defendant to that gun and the Enfield Street murder.[25] Having reviewed the record in the present case, we conclude that the prejudicial effect of the uncharged misconduct unduly exceeded its probative value.

The judgment of the Appellate Court is reversed and

the case is remanded to that court with direction to reverse the judgment of the trial court and to remand the case to that court for a new trial.

In this opinion the other justices concurred.

* The listing of justices reflects their seniority status on this court as of the date of oral argument.

** December 4, 2020, the date that this decision was released as a slip opinion, is the operative date for all substantive and procedural purposes.

[1] This court granted the defendant's petition for certification to appeal, limited to the following issues: (1) "Did the Appellate Court correctly conclude that the trial court had properly denied the defendant's motion for a *Porter* hearing to determine the reliability of firearm and toolmark identification?" (2) "Did the Appellate Court correctly conclude that the trial court had properly denied the defendant's motion in limine to limit the scope of the testimony of the state's expert on firearm and toolmark analysis?" And (3) "[d]id the Appellate Court correctly conclude that the trial court had properly admitted the uncharged misconduct evidence?" *State* v. *Raynor*, 330 Conn. 910, 193 A.3d 49 (2018).

[2] *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). "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. . . . A *Porter* analysis involves a two part inquiry that assesses the reliability and relevance of the witness' methods. . . . First, the party offering the expert testimony must show that the expert's methods for reaching his conclusion are reliable. A nonexhaustive list of factors for the court to consider include: general acceptance in the relevant scientific community; whether the methodology underlying the scientific evidence has been tested and subjected to peer review; the known or potential rate of error; the prestige and background of the expert witness supporting the evidence; the extent to which the technique at issue relies [on] subjective judgments made by the expert rather than on objectively verifiable criteria; whether the expert can present and explain the data and methodology underlying the testimony in a manner that assists the jury in drawing conclusions therefrom; and whether the technique or methodology was developed solely for purposes of litigation. . . . Second, the proposed scientific testimony must be demonstrably relevant to the facts of the particular case in which it is offered, and not simply be valid in the abstract. . . . Put another way, the proponent of scientific evidence must establish that the specific scientific testimony at issue is, in fact, derived from and based [on] . . . [scientifically reliable] methodology. . . .

"Additionally, we recognized in *Porter* that . . . [t]he actual operation of each [*Porter*] factor, as is the determination of which factors should be considered at all, depends greatly on the specific context of each case in which each particular [threshold admissibility] analysis is conducted. . . . There is, however, a critical postulate that underlies the *Porter* factors and indeed underlies the entire *Porter* analysis: in order for the trial court, in the performance of its role as the gatekeeper for scientific evidence, properly to assess the threshold admissibility of scientific evidence, the proponent of the evidence must provide a sufficient articulation of the methodology underlying the scientific evidence. Without such an articulation, the trial court is entirely ill-equipped to determine if the scientific evidence is reliable upon consideration of the various *Porter* factors. Furthermore, without a clear understanding as to the methodology and its workings, the trial court also cannot properly undertake its analysis under the fit requirement of *Porter*, ensuring that the proffered scientific evidence, in fact, is based upon the reliable methodology articulated." (Internal quotation marks omitted.) *State* v. *Edwards*, 325 Conn. 97, 124–25, 156 A.3d 506 (2017).

[3] The defendant cites two particular publications. See National Research Council of the National Academies, Strengthening Forensic Science in the United States: A Path Forward (2009) (2009 NAS report); National Research Council of the National Academies, Ballistic Imaging (2008) (2008 NAS report). For the sake of simplicity, we collectively refer to these publications as the NAS reports.

[4] For example, in his principal brief to this court, the defendant interprets the NAS reports to stand for the proposition that "firearm toolmark identification has not been proven to be scientifically valid for three primary rea-

sons: (1) the fundamental assumptions of the methodology are not reliable, (2) the standard for identifying matches to particular firearms is impermissibly vague and subjective, and (3) there is no quantification of the accuracy and error rates of identifications."

[5] At trial, Stephenson described the three sets of characteristics that firearm and toolmark examiners compare between casings recovered from a crime scene and a test fire from a suspected weapon to determine the existence of a match. Class characteristics are the general ammunition characteristics that are intentionally made during the manufacturing process, including, but not limited to, the size, shape, weight, diameter, grooves, and other features that indicate the manufacturer and caliber of that specific ammunition. Subclass characteristics are markings on the ammunition that are not made for the purpose of the ammunition itself but that are unintentionally made during the manufacturing process. These markings are made by the tools as the ammunition is manufactured, for example, the bore tool as it cuts the grooves. Individual characteristics are fine striated marks that are left on the ammunition by a specific firearm due to unique markings left by the actual manufacturing of a barrel or the repeated use of the firearm that has worn down or chipped that barrel.

[6] The Appellate Court also noted that "policy dictates that one panel should not . . . reverse the ruling of a previous panel. The reversal may be accomplished *only* if the appeal is heard en banc." (Emphasis in original; internal quotation marks omitted.) *State* v. *Raynor*, supra, 181 Conn. App. 770 n.4. "On November 27, 2017, the defendant filed a motion for consideration en banc, which [the Appellate Court] denied on January 10, 2018. Additionally, the entire [Appellate Court did not order] that [the] case be considered en banc pursuant to Practice Book § 70-7 (b), nor [was it] persuaded that en banc review [was] warranted. Therefore, [the Appellate Court would] not overrule *Legnani*." Id.

[7] We 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 firearm and toolmark expert to warrant a *Porter* hearing must be vested, in the first instance, in the sound discretion of the trial court. See, e.g., *State* v. *Jackson*, 304 Conn. 383, 412, 40 A.3d 290 (2012). We note, however, that various courts have considered the NAS reports and concluded that firearm and toolmark evidence continues to be both reliable and admissible. See, e.g., *United States* v. *Otero*, 849 F. Supp. 2d 425, 430, 437–38 (D.N.J. 2012), aff'd, 557 Fed. Appx. 146 (2014); *State* v. *Terrell*, Superior Court, judicial district of New Haven, Docket No. CR-17-0179563-S (March 21, 2019) (68 Conn. L. Rptr. 323, 325, 327); *Johnston* v. *State*, 27 So. 3d 11, 20–22 (Fla.), cert. denied, 562 U.S. 964, 131 S. Ct. 459, 178 L. Ed. 2d 292 (2010); *State* v. *Adams*, Docket No. COA10-1363, 2011 WL 1938270, *6–7 (N.C. App. May 17, 2011).

[8] *Frye* v. *United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

[9] *Porter* hearings held by trial courts are synonymous with *Daubert* hearings held by federal district courts and state courts of other jurisdictions. The hearings, regardless of their title, involve the application of the principles articulated in *Daubert*. See footnote 2 of this opinion.

[10] From 1994 to 2014, Stephenson was employed by the Connecticut State Forensic Laboratory's Firearms Identification Unit as a firearm and toolmark examiner. From 2008 to 2014, he also served as a member of the Scientific Working Group for Firearms and Toolmarks, which "wrote protocol and procedures and adopted information that was disseminated to the firearms and toolmark examiners" throughout the world. Since 2014, Stephenson had worked as a private consultant for firearm and toolmark identification. In addition, Stephenson had attended numerous trainings offered by the AFTE, the Bureau of Alcohol, Tobacco, Firearms and Explosives, and the Federal Bureau of Investigation. Over the course of his career, Stephenson had examined tens of thousands of firearms and testified a total of 321 times in both state and federal courts.

[11] The jury heard testimony from Alisha Stevens, who was standing with the victim on Enfield Street when he was murdered. Stevens, however, could not identify the shooter or the firearm. The jury also heard testimony from Deborah Parker and Stephenson about the shooting on Baltimore Street. Parker identified the defendant as having fired a rifle at her and her partner, but she could not positively identify the .223 caliber Kel-Tec assault rifle as the weapon used. As described in part II of this opinion, however, testimony related to the Baltimore Street shooting had extremely limited probative value.

[12] The jury heard Rivera testify to the following pending cases in addition

to the charges related to the Enfield Street murder, all of which he was arrested for, pursuant to a warrant issued on November 5, 2013: (1) an incident on December 15, 2007, for which he was charged with attempted murder and conspiracy to commit murder; (2) an incident on July 22, 2008, for which he was charged with conspiracy to commit murder, two counts of attempt to commit murder, and two counts of accessory to commit assault in the first degree; (3) an incident on August, 9, 2008, for which he was charged with manslaughter in the first degree with a firearm, six counts of accessory to commit assault in the first degree, and weapons offenses; (4) an incident on August 9, 2008, for which he was charged with conspiracy to commit murder, two counts of accessory to commit murder, and criminal possession of a firearm; and (5) an incident on August 10, 2008, for which he was charged with conspiracy to commit murder, two counts of attempt to commit murder, two counts of assault in the first degree, and weapons offenses. In addition, Rivera was also arrested pursuant to a warrant issued in October, 2012, and charged with the sale of narcotics.

[13] In *Terrell*, the defendant "moved to preclude the [s]tate from presenting the testimony of . . . a firearm and toolmark examiner . . . to the jury . . . because the methodology of toolmark analysis is not scientifically valid. In the alternative, the defendant request[ed] that the [trial] court limit the scope of [the expert's] testimony by prohibiting him from testifying that the shell casing found at the scene was fired from the firearm located there." *State* v. *Terrell*, supra, 68 Conn. L. Rptr. 324. In that case, the court, *Alander*, *J.*, granted the defendant's request for a *Porter* hearing notwithstanding *State* v. *Raynor*, supra, 181 Conn. App. 760, and *State* v. *Legnani*, supra, 109 Conn. App. 399. See *State* v. *Terrell*, supra, 324. In so doing, the court in *Terrell* noted that "both [*Raynor* and *Legnani*] held that the trial court did not abuse its discretion in refusing to conduct . . . a hearing on the issue of firearm analysis . . . implicitly leav[ing] a trial court the discretion to hold such a hearing." (Citation omitted.) Id. Furthermore, it concluded that, "[g]iven recent national studies raising questions regarding the methodology used in firearm and toolmark examination . . . a hearing on the validity of the methodology was warranted." Id. The court in *Terrell* proceeded to hold a *Porter* hearing and concluded that the state had established that "basic techniques employed by firearm and [toolmark] examiners are generally accepted in the relevant scientific community." Id., 327.

As part of the *Porter* hearing, the court in *Terrell* considered the NAS reports as well as a report issued by the President's Council of Advisors on Science and Technology, titled "Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature Comparison Methods . . . ." (Internal quotation marks omitted.) Id., 325–26. The court also denied the defendant's motion to preclude the testimony of the expert in its entirety but prohibited the expert from testifying that "the likelihood that a firearm other than the [one] recovered at the crime scene could have fired the recovered [subject] casing is so remote as to be considered a practical impossibility." (Internal quotation marks omitted.) Id., 327; see id., 328.

[14] In *Balbi*, the trial court took judicial notice of its own decision in a separate case, as well as the decision of another Superior Court judge, that a horizontal gaze nystagmus test was a scientifically reliable and relevant test. *State* v. *Balbi*, supra, 89 Conn. App. 572. During the pendency of the appeal in *Balbi*, the Appellate Court considered horizontal gaze nystagmus evidence in *State* v. *Commins*, 83 Conn. App. 496, 501–502, 850 A.2d 1074, aff'd, 276 Conn. 503, 886 A.2d 824 (2005). "In *Commins*, the trial judge conducted a *Porter* hearing during which he heard extensive testimony . . . . At the conclusion of the *Porter* hearing, the court found that the horizontal gaze nystagmus test and its underlying methodology [are] generally accepted in the scientific community—a conclusion that alone would likely suffice to establish a sufficient foundation for admission—but also that [they satisfy] many of the remaining *Porter* criteria. On the basis of that determination, the [trial judge] allowed evidence related to the test." *State* v. *Balbi*, supra, 575–76. The Appellate Court affirmed the judgment of the trial court in *Commins*. *State* v. *Commins*, supra, 514. Returning to the appeal in *Balbi*, the Appellate Court held that its "determination in *Commins* that horizontal gaze nystagmus evidence satisfies the *Porter* test for the admission of scientific evidence rendered it unnecessary for the [trial] court in [*Balbi*] to conduct its own *Porter* hearing prior to admitting evidence about the test." *State* v. *Balbi*, supra, 576. There is no indication that additional evidence challenging the horizontal gaze nystagmus test was brought to the attention of the trial court in *Balbi* that was not previously considered in *Commins*.

[15] Even when an appellate court has upheld a trial court's denial of a *Porter* hearing, such a decision is binding only to the extent that a future challenge to the reliability of the methodology relies on the same evidence considered by the prior trial court. In the present case, the NAS reports submitted by the defendant postdated the decision in *Legnani*.

[16] For example, a trial court may take judicial notice of the conclusions reached with respect to firearm and toolmark methodology following the *Porter* hearing in *Terrell*. See generally *State* v. *Terrell*, supra, 68 Conn. L. Rptr. 323.

[17] The purpose of taking judicial notice of previous *Porter* hearings is to avoid redundancies created by holding successive hearings when another trial court has considered the same evidence challenging the methodology. This does not, however, mean that the reliability of the underlying methodology is insulated from appellate review. A trial court's decision to deny a *Porter* hearing is still subject to appellate review, and taking judicial notice does not prevent review for abuse of discretion.

[18] "It is well settled that [a]ppellate courts possess an inherent supervisory authority over the administration of justice. . . . Under our supervisory authority, we have adopted rules intended to guide the lower courts in the administration of justice in all aspects of the criminal process. . . . Generally, cases in which we have invoked our supervisory authority for rule making have fallen into two categories. . . . In the first category are cases wherein we have utilized our supervisory power to articulate a procedural rule as a matter of policy, either as [a] holding or dictum, but without reversing [the underlying judgment] or portions thereof. . . . In the second category are cases wherein we have utilized our supervisory powers to articulate a rule or otherwise take measures necessary to remedy a perceived injustice with respect to a preserved or unpreserved claim on appeal." (Citation omitted; internal quotation marks omitted.) *State* v. *Weatherspoon*, 332 Conn. 531, 552–53, 212 A.3d 208 (2019).

[19] The Appellate Court also could not say that "admission of the uncharged misconduct evidence created a distracting side issue, as the evidence admitted linked the rifle and the perpetrator of the uncharged shooting to the murder at issue in [the present] case. Additionally, the presentation of evidence related to the Baltimore Street shooting did not take up an inordinate amount of time, as the presentation of the uncharged misconduct evidence comprised at most one and one-half days of a six day trial. Finally, the defendant was not unfairly surprised by the admission of this evidence, as it was admitted in the defendant's first trial and [as] the state filed a pretrial motion for the admission of uncharged misconduct evidence." (Footnote omitted.) *State* v. *Raynor*, supra, 181 Conn. App. 778.

[20] The state also contends that any error in this regard was harmless. Because we address this claim as an issue likely to arise on remand, we need not address questions of harmless error in the present appeal.

[21] The defendant does not contest the relevancy of the evidence relating to the Baltimore Street shooting.

[22] The judge at the defendant's first trial noted the risk of admitting improper character evidence. During pretrial oral arguments, the trial court stated that it was "very concerned in this case that the . . . defendant not be tried . . . under the theory of a bad man. We don't do that. So, I think both sides are going to have to be careful in not opening doors that—I don't know if I've seen a case with so many doors."

[23] The state claims that the prejudicial impact is negated "in light of the care with which the trial court, on three separate occasions, cautioned the jury as to the limited use for which [it was] to consider the evidence." We acknowledge that the trial court gave the jury limiting instructions that the uncharged misconduct evidence was being admitted "solely to show or establish [the] identity of the person who committed the crimes alleged in this information, and the availability of the means to commit those crimes" on the following three occasions: (1) prior to the state first presenting evidence of the Baltimore Street shooting, (2) following Parker's testimony, and (3) during its final charge to the jury. See *State* v. *Beavers*, 290 Conn. 386, 406, 963 A.2d 956 (2009) ("the care with which the [trial] court weighed the evidence and devised measures for reducing its prejudicial effect militates against a finding an abuse of discretion" (internal quotation marks omitted)). Although limiting instructions serve to "minimize any prejudice that might arise from the admission of . . . prior misconduct evidence"; *State* v. *Cutler*, 293 Conn. 303, 314, 977 A.2d 209 (2009), overruled in part on other grounds by *State* v. *Elson*, 311 Conn. 726, 91 A.3d 862 (2014); the instructions would have needed to virtually eliminate the prejudice in the

present case, given the very low probative value of the evidence of the Baltimore Street shooting. We cannot conclude that even multiple limiting instructions could have achieved that goal. In addition, limiting instructions may feature more prominently in a harmless error analysis. See footnote 20 of this opinion.

[24] The Appellate Court held that *Collins* guided its resolution of the claim based on the proposition that uncharged misconduct is admissible when the "severity of the charged conduct outweigh[s] the severity of the uncharged conduct." *State* v. *Raynor*, supra, 181 Conn. App. 777. The facts of *Collins*, however, are distinguishable from the facts of the present case. In *Collins*, the uncharged misconduct involved a shooting that not only occurred in closer temporal proximity to the charged murder than in the present case—four months as opposed to eight months—it occurred *prior* to the charged murder. See *State* v. *Collins*, supra, 299 Conn. 570–72. We also observe that the defendant in that case admitted to committing the uncharged misconduct with a chrome and black nine millimeter handgun. Id., 572. Further, in *Collins*, a witness testified to having seen the defendant with the same gun used in the uncharged misconduct several days before the charged murder. Id., 573–74. Thus, the facts of *Collins* made the uncharged misconduct highly probative.

[25] Rivera provided eyewitness testimony that the defendant purchased the .223 caliber Kel-Tec assault rifle one to one and one-half months before the Enfield Street murder, and also testified that the defendant had called him for the purpose of finding and shooting members of The Avenue, the defendant used the .223 caliber Kel-Tec assault rifle as the shooter at the Enfield Street murder, and the defendant knew where the weapon was located prior to its being recovered by the police, because the defendant was the one who notified Rivera that it had been found. In addition, Stephenson testified that the casings recovered from the Enfield Street murder matched the recovered .223 caliber Kel-Tec assault rifle.