SJC-13161

COMMONWEALTH vs. PHILIP CHISM.

Essex. October 9, 2024. - February 25, 2025.

Present: Budd, C.J., Gaziano, Wendlandt, Georges, & Wolohojian, JJ.

Homicide. Rape. Robbery. Evidence, Expert opinion, Scientific test, Hearsay, Relevancy and materiality, Cross-examination, Redirect examination, Disclosure of evidence, Age, Inference, Argument by prosecutor, Photograph. Witness, Expert, Psychiatric examination, Cross-examination, Redirect examination. Criminal Responsibility. Practice, Criminal, Hearsay, Cross-examination by prosecutor, Psychiatric examination, Disclosure of evidence, Discovery, Instructions to jury, Motion to suppress, Argument by prosecutor, Venue, Sentence, Capital case. Jury and Jurors. Constitutional Law, Search and seizure, Sentence. Search and Seizure, Inevitable discovery. Rules of Criminal Procedure.

Indictments found and returned in the Superior Court Department on November 21, 2013, and January 24, 2014.

A pretrial motion to suppress evidence and a motion for a change of venue were heard by David A. Lowy, J., and the cases were tried before him.

Michael R. Schneider (Benjamin Brooks also present) for the defendant.

David F. O'Sullivan, Assistant District Attorney, for the Commonwealth.

Melissa Allen Celli & Ryan M. Schiff, for youth advocacy division of the Committee for Public Counsel Services, amicus curiae, submitted a brief.

Sara E. Silva & Chauncey B. Wood, for Massachusetts Association of Criminal Defense Lawyers, amicus curiae, submitted a brief.

GAZIANO, J. In the early morning hours of October 23, 2013, a search team found Colleen Ritzer, a Danvers High School math teacher, dead in the woods outside the high school. She had been brutally raped, strangled, and stabbed. The defendant was a fourteen year old student in her freshman math class. A Superior Court jury convicted the defendant of murder in the first degree on theories of deliberate premeditation and extreme atrocity or cruelty and, as a youthful offender, on indictments charging aggravated rape and armed robbery.

The major issue before the jury was whether the defendant lacked criminal responsibility. On appeal, the defendant contends that the trial judge impeded his ability to present fully this defense. He raises the following issues: first, whether the judge properly excluded expert testimony of structural magnetic resonance imaging (sMRI) brain scans showing abnormalities in the defendant's brain consistent with mental illness; second, whether the judge erred in prohibiting the defendant's expert psychiatrist from testifying on direct examination to hearsay statements made by the defendant; third,

whether the prosecutor unfairly cross-examined defense expert witnesses on irrelevant and prejudicial topics; fourth, whether the judge erred in requiring the disclosure to the Commonwealth of psychological testing data generated by a nontestifying defense expert; and, fifth, whether the Commonwealth's expert psychologist should have been precluded from testifying after reviewing the defendant's suppressed videotaped confession.

In addition, the defendant asserts that he is entitled to a new trial based on several other erroneous rulings, and that the Commonwealth failed to introduce sufficient evidence to support the aggravated rape and armed robbery convictions. Finally, he contends that imposition of a forty-year sentence on the nonhomicide convictions violated the proportionality requirements of art. 26 of the Massachusetts Declaration of Rights. For the reasons detailed below, we affirm the convictions and, after a complete review of the record, decline to exercise our authority under G. L. c. 278, § 33E, to order a new trial or reduce the verdict of murder in the first degree.[1]

1. Facts. We recite the facts the jury could have found, reserving other facts for our discussion of specific issues.

[1] We acknowledge the amicus briefs submitted in support of the defendant by the youth advocacy division of the Committee for Public Counsel Services and the Massachusetts Association of Criminal Defense Lawyers.

a. The Commonwealth's case. The twenty-four year old victim began teaching math at Danvers High School (high school) in September 2012. This was a dream job for the self-described math enthusiast, who wanted to teach from an early age. She lived with her parents and younger siblings in a neighboring town.

In October 2013, the defendant was a student in the victim's freshman class. He recently had moved to Danvers from Tennessee with his mother. By that point in the school year, he had a few friends and was a skilled member of the junior varsity soccer team. The defendant was an average student with inconsistent effort typical of many first-year students.

On October 22, 2013, the victim taught the defendant's math class in the last period of the school day, from 1 P.M. to 1:55 P.M. Her classroom was located on the second floor of the high school's three-story academic wing. The defendant entered the victim's classroom dressed in a red sweatshirt with a black and yellow backpack on his back and carried a red nylon drawstring backpack. Wearing an earbud in one ear and doodling in a notebook, the defendant appeared uninterested in the lesson and did not participate in a group activity.

The defendant remained in the victim's classroom after the last bell. While teachers were available to offer extra help to students until 2:30 P.M., the victim confided to a coworker, "I

don't know why he is here."[2] Another student stayed after school to visit the victim and draw on the whiteboard. In the extra help session, the victim asked the defendant about his family, his recent move, and what he missed about Tennessee. The defendant appeared annoyed and answered the victim's friendly questions in a low, "mumbly" tone of voice.

When the victim stepped out of the room to make copies and talk to her coworker, the defendant joined his classmate at the whiteboard. The defendant complimented her artwork. He wrote her name in Chinese characters, and she acknowledged that it was "cool." During this interaction, which lasted from fifteen to twenty minutes, the defendant maintained eye contact with his classmate and had no apparent difficulties communicating with her. The victim stepped back into her classroom to inform the students that she had to leave soon. On her way out, the defendant's classmate told the victim that she was a "great person . . . really nice . . . [and made] math really easy," and expressed disappointment that she did not have math class with the victim the next day. Observing this conversation, the defendant looked "annoyed" and "angry almost." The victim and

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[2] The jury heard conflicting evidence regarding the defendant's reason for staying after school. According to a student, the victim asked the defendant to stay after school because the defendant "was struggling a little bit . . . and [the victim] wanted to help him." The student added that the victim was "really nice about it."

the other student left the classroom at the same time, while the defendant lingered behind.

At 2:55 P.M., the victim entered a second-floor girl's bathroom.[3] Seconds later, the defendant, now wearing a light blue hooded sweatshirt, emerged from the victim's classroom. Armed with a box cutter knife, he put on a pair of white gloves and followed the victim into the bathroom.

Approximately eleven minutes later, a student briefly walked into the bathroom. Upon opening the door, she observed the naked buttocks of a dark-skinned person near the bathroom sinks.[4] Believing that she had interrupted someone changing clothes, the student hurriedly left the bathroom to avoid embarrassing a classmate.

The defendant exited the bathroom at 3:07 P.M. -- twelve minutes after entering. He walked briskly with his sweatshirt's hood up and his head down, carrying a bundle of clothing, which included the victim's black pants. The defendant was gloveless,

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[3] The facts surrounding the victim's and defendant's appearances and movements throughout the high school are based largely on video recordings from the school's motion-activated network of more than one hundred surveillance cameras. A video compilation of relevant clips, from 6:53 A.M. to 4:31 P.M., and still images from the video compilation were introduced in evidence.

[4] The defendant is dark-skinned.

and there was a visible bloodstain on his right hand. He then walked down a stairway and exited the school.

Once outside, the defendant entered a wooded area alongside the student drop off area. A parent, whose car was parked on the curb, observed the defendant change clothes while crouched in the bushes. The defendant reentered the school at 3:10 P.M., wearing a white T-shirt and jeans, and was no longer carrying the bundle of clothes he had removed from the bathroom. Inside the building, the defendant ducked into the victim's second-floor classroom and exited with his red sweatshirt draped over his arm, carrying his black and yellow backpack, along with the victim's black tote bag and purple lunch bag. He jogged toward the bathroom, but paused, interrupted by a soccer teammate.

The teammate had expected to meet the defendant on the soccer field at 3 P.M. for an informal practice session. When the defendant did not arrive, the teammate went inside the school looking for him. Observing the defendant on the second floor, the teammate yelled the defendant's nickname. The defendant did not answer. The teammate walked up to the defendant and asked him what he was doing. The defendant explained that "he had lost something and he couldn't find it." He declined the teammate's offer of help and promised to meet him on the soccer field. The defendant was sweating and appeared to be scared.

The teammate followed the defendant downstairs to the first floor, where he observed the defendant move a large blue rolling recycling bin from the stairway to the elevator bank. The teammate asked the defendant what he was doing with the bin. The defendant answered, "nothing," and again told the teammate he would meet him on the soccer field. At the elevator bank, the defendant looked afraid, worried, and "[n]ot himself." The teammate left.

The defendant took the elevator to the second floor and rolled the bin into the bathroom at 3:16 P.M. He emerged seven minutes later with the bin. The defendant left the building pulling the bin (which seemed heavier than before) through a parking lot. A student, seated at a picnic table, observed the defendant struggle to push the bin up a steep, rocky incline into the woods behind the school.

At 4 P.M., the defendant returned to the school, barefoot and still wearing a white T-shirt and bloodstained jeans. He collected items from his third-floor locker and entered a boy's bathroom to change into a black long-sleeved shirt, black shorts, and blue sneakers. After briefly visiting the second-floor girl's bathroom, he went back into the woods at 4:07 P.M., and about fifteen minutes later, walked through a school parking lot.

The defendant unexpectedly encountered a friend outside the school, whom he had met at summertime religious services. Appearing "a little bit just down in the dumps" at first, the defendant returned to "his normal self" as they discussed an upcoming Sunday night church youth group meeting. The defendant said that he could not attend because of mounting homework and apologized for not returning text messages. After this conversation, the defendant walked through the field house and left the high school at 4:31 P.M.

Next, the defendant walked about two or three miles to a Danvers shopping center. There, he used the victim's credit card to purchase fast food and a movie ticket. At around 5:30 P.M., the defendant shoplifted a survival knife from a store and walked into the bordering town of Topsfield.

At 6:30 P.M., the defendant's mother reported him missing to the Danvers police department. Efforts to locate the defendant ensued, including posts to social media sites and a reverse 911 call to Danvers residents. Neal Hovey, a Topsfield police officer who lived in Danvers, learned of the defendant's disappearance prior to reporting to work. On duty in Topsfield, at 12:28 A.M., Officer Hovey responded to a dispatch concerning a Black man walking along Route 1 northbound. This section of highway was unsafe for pedestrians, especially at night. Hovey found the defendant walking on the side of the road wearing a

light blue hooded sweatshirt and black shorts and carrying a red nylon drawstring backpack. In response to Hovey's questions, the defendant answered that he was going "nowhere," had come from "Tennessee," and had no address. Hovey, joined by fellow Topsfield police officer Joseph DeBernardo, pat frisked the defendant. The officers found two Massachusetts drivers' licenses, credit cards, and an insurance card, all in the victim's name -- the significance of which they did not realize at the time.

The defendant eventually informed the officers that his name was Philip Chism. The police officers were "elated" to have found the missing teenager. Hovey went into "parent mode" placing the defendant inside a cruiser for warmth. Before being driven to the police station, the defendant explained that he stole the credit cards from a woman's automobile parked at a grocery store. At the police station, Hovey inventoried the red backpack. Although the defendant indicated that the backpack contained "survival gear," Hovey found, among other items, the victim's wallet and underwear within the backpack. Inside the wallet, Hovey located a rectangular box cutter with an exposed one-inch blade stained with a "reddish-brownish colored substance." Hovey asked, "[W]hose blood is this?" The defendant replied, "[I]t's the girl's." Asked where she was, he

further replied, "[B]uried in the woods." He also answered that it was too late to save her.

In the meantime, the victim's parents were concerned when she did not arrive home from work. Alerted by the victim's parents, her friends and colleagues searched the school building and grounds. They found her vehicle parked in its usual space and her purse sandwiched between two boulders in a wooded area along a dirt path. An expanded search team, consisting of State and local law enforcement agencies, discovered numerous pieces of evidence in the woods, including the bloodstained white gloves, the victim's pants, the recycling bin toppled over on its side, the defendant's school identification, and a folded note reading, "I hate you all." At 3 A.M., a crime scene technician walking down a dirt path through a field near the high school's parking lot observed a human toe with pink nail polish protruding from some leaves by the path.

The victim was positioned on her back covered with leaves and sticks. She was unclothed from the waist down, with her legs spread and bent. Her shirt was pushed up, and bra pulled down, exposing her breasts. A tree branch had been inserted into her vagina, causing a one-inch perimortem laceration.[5] An

[5] Based on this evidence of perimortem injury (inflicted at around the time of death or during the dying process), the defendant argued that the Commonwealth failed to establish that

autopsy revealed petechial hemorrhaging around her face, eyes, and mouth indicative of asphyxiation. She suffered at least sixteen sharp force injuries to her neck that severed major blood vessels, some inflicted with enough force to penetrate her vertebrae.

Forensic scientists recovered two sperm cells from an internal vaginal swab. A Y-chromosome short tandem repeat deoxyribonucleic acid (DNA) test of these cells generated a partial match to the defendant's DNA profile. The frequency of occurrence of the DNA profile generated from the vaginal swab was one in 521 of the African-American population; one in 1,114 of the Asian population; one in 167 of the Caucasian population; and one in 455 of the Hispanic population.

b. The defendant's case. The defendant asserted a defense of lack of criminal responsibility. In support, he called several witnesses, including family members, a soccer coach, friends, high school classmates, and three experts.

According to family members and corroborated by psychiatric records, the defendant's maternal grandmother had suffered a "nervous breakdown" and was hospitalized for "psychiatric

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the victim was alive at the time of this injury. The jury found the defendant not guilty of aggravated rape "to wit: penetrating genital opening with tree branch."

problems." Likewise, the defendant's aunt had been diagnosed with mental illness requiring psychiatric hospitalization.

Relatives and family friends described the struggles of the defendant's mother in raising the defendant and his two siblings as a single parent. The family moved from Tennessee to Florida and back to Tennessee. She attempted to provide the defendant with a structured environment in a sometimes chaotic household. The defendant, in his preteen years, was moody and reserved, but still respectful and well behaved. A Tennessee middle school soccer coach singled the defendant out as a hardworking, respectful, and unselfish teammate. He described the defendant as a "yes, sir, no, sir" type of player.

In Clarksville, Tennessee, the defendant developed a close brotherly bond with a friend. "[C]raving normal[cy]," the defendant spent most weekends with his friend's family. The two would skateboard and play videogames and sports together. Additionally, around this time, the defendant developed an obsession with anime[6] television shows and books. The defendant, according to his friend's mother, was "polite" and "well-behaved." The only exception, she noted, was the defendant's

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[6] Anime is "a style of animation originating in Japan that is characterized by stark colorful graphics depicting vibrant characters in action-filled plots often with fantastic or futuristic themes." Merriam-Webster Online Dictionary, https://www.merriam-webster.com/dictionary/anime [https://perma.cc/A3DG-8S8E].

disrespectful attitude toward his mother. Wishing to be near family in Massachusetts, the defendant's mother moved to Danvers in 2013, leaving her other children in the care of relatives. Although the defendant displayed no outward signs of anxiety, the move away from his best friend, his best friend's family, and other sources of support in Clarksville was, according to defense experts, disruptive.

The defendant's high school classmates noticed behavioral changes in the days or week preceding the crime. The defendant ignored other students, seemed preoccupied, and became withdrawn, solitary, and quiet. A soccer teammate recounted that, around the middle of October, the defendant had scored a goal and uncharacteristically did not celebrate the accomplishment. When the coach suggested that the defendant praise his teammate for the assist, the defendant "just turned away and didn't really say anything," with a blank expression on his face.

Three criminal responsibility expert witnesses testified for the defense: Drs. Anthony Jackson, Richard G. Dudley, Jr., and Yael Dvir. The first witness, Dr. Jackson, was the medical director for the adolescent continuing care units at the Worcester Recovery Center and Hospital. Relying on near-daily midtrial observations of the defendant, he concluded that the defendant suffered from major depression and a "brief transient

psychotic episode." The psychotic episode, he opined, involved disorganized behavior, language, and thoughts, impacting the defendant's ability to function. Jackson noted that the defendant showed marked improvement when administered Risperdal, a powerful antipsychotic drug. He did, however, acknowledge on cross-examination that the stress of the trial may have triggered this psychotic event.

Dr. Dudley, a psychiatrist, was the defendant's main expert witness. He interviewed the defendant seven times from March 2015 to December 2015. In these sessions, which lasted from two to three hours, Dudley noted that the defendant had a flat affect, mumbled to himself, failed to respond to questions or pay attention, and exhibited disorganized thoughts and auditory hallucinations. Dudley also reviewed the high school's videotape footage, police reports, and the defendant's family history of mental illness, and conducted collateral interviews with the defendant's family members and classmates. Based on this information, he diagnosed the defendant as suffering from a psychotic disorder not otherwise specified, as defined in the Diagnostic and Statistical Manual of Mental Disorders (4th ed. 1994) (DSM-IV) issued by the American Psychiatric Association (APA). This diagnosis is used when a person has enough symptoms to meet the broad category of psychotic disorders but there is insufficient information to diagnose a more specific disorder.

Dudley was unsure whether the disorder would go on to "look like" "schizophrenia early onset" or more like "trauma-induced psychosis." He therefore preferred the DSM-IV diagnosis, rather than the APA's comparable Diagnostic and Statistical Manual of Mental Disorders (5th ed. 2013) (DSM-V) diagnosis of unspecified schizophrenia spectrum and other psychotic disorders.

Dudley opined to a reasonable degree of medical certainty that, at the time of the incident, the defendant was suffering from a psychotic disorder, acted in response to command hallucinations, and was in the throes of a psychotic episode. As a result of this mental disease or defect, the defendant lacked the substantial capacity to conform his conduct to the requirements of the law. Dudley explained that the defendant experienced intense and "impossible . . . to ignore" command auditory hallucinations that made the defendant feel "humiliated [and] degraded," "upset and angry," and "depressed and withdrawn." Dudley also testified that the defendant had a delusional belief that he "wasn't a human being," but rather a "kind of nonhuman with nonhuman powers."

Dudley explained that the defendant's conduct, as displayed on the videotaped footage, demonstrated disorganized thinking characteristic of an individual experiencing a psychotic episode. For example, the defendant "walk[ed] around the halls of the high school covered with blood," in view of surveillance

cameras, rather than fleeing as soon as possible. The defendant's posing of the body and penetration of the victim's vagina with a tree branch, Dudley opined, was "bizarre" behavior consistent with this diagnosis.

Dr. Dvir, a psychiatrist, testified as a teaching expert witness on the topic of psychosis in children and adolescents. As such, she never had met the defendant and offered no opinion on his criminal responsibility. She informed the jury that schizophrenia is a biologically based "chronic brain illness" characterized by periods of acute psychosis, and that the usual age of onset is later in adolescence, toward the mid-twenties and thirties, but early onset occurs between the ages of thirteen and eighteen. She opined that adolescents who suffer from schizophrenia but have a higher intellectual ability can better function between psychotic episodes as compared to "somebody who starts already having some deficits." Dvir opined further that an adolescent can experience "quiet" hallucinations and delusions as "[l]ead-up symptoms" that can be easily missed by adults for a long time, before a significant life transition acts as a stressor that "push[es] [the adolescent] over the edge."

c. The Commonwealth's rebuttal. Three expert witnesses testified in rebuttal: Drs. Kelly Casey, Nancy Hebben, and Robert Kinscherff. A month before trial, Dr. Casey, a forensic

psychologist, administered a Rorschach inkblot test, a "performance-based measure of personality and emotional functioning." The defendant, according to Casey, did not exhibit disorganized thoughts, psychosis, or delusions. She testified that although the defendant had a "fantasy life" and his "reality testing" was "impaired," he understood the difference between fantasy and reality, and "didn't show any signs of getting lost in a fantasy world."

Dr. Hebben, a neuropsychologist hired by Dr. Kinscherff, conducted a neuropsychological evaluation of the defendant for cognitive defects and malingering. Malingering, she explained, ranges from "pure malingering" (i.e., feigned mental illness) to "partial malingering" (in which the individual exaggerates symptoms of actual mental illness). Hebben opined that, overall, the defendant's test results were "highly suggestive of a malingered mental illness." She was, however, unable to rule out the possibility that the defendant suffered from "some kind of psychopathology" but just exaggerated his symptoms.

Kinscherff, a forensic psychologist, interviewed the defendant for a total of about thirteen hours between July 2015 and October 2015. It was his opinion that the defendant was "not suffering from a mental disease or defect" on October 22, 2013, and that the defendant may have exhibited symptoms of distress or emotional disturbance, but they did not

substantially impair his ability to conform his conduct to the requirements of the law. Significant to his opinion were Casey's test results showing no indication of a psychotic process, and Hebben's results showing likely malingering and no evidence of a psychotic disorder. In contrast to Dudley's testimony, he did not observe the defendant exhibit disorganized thoughts or an impaired ability to communicate.

The prosecutor, in detail, walked Kinscherff through videotaped surveillance footage, and Kinscherff pointed out evidence of the defendant's planning (such as bringing gloves and a box cutter) and efforts to avoid detection. Kinscherff testified that the amount of "overkill," the taking of the victim's underwear as a souvenir, and the degrading way the defendant posed her body were evidence of "emotional arousal" and the defendant's effort to assert dominance and control over the victim. These are features of "sexual homicides" not involving mental illness.

2. Discussion. In this direct appeal, the defendant presents eleven claims and also asks this court to vacate his conviction of murder in the first degree under G. L. c. 278, § 33E. He contends that (1) the judge abused his discretion in excluding expert testimony that abnormalities in the defendant's sMRI brain scans were consistent with mental illness; (2) the judge improperly precluded Dudley from testifying on direct

examination to hearsay statements made by the defendant; (3) the Commonwealth improperly cross-examined defense experts on irrelevant and prejudicial topics; (4) the judge erred in forcing the defense to disclose raw psychological testing data generated by a nontestifying expert witness to the Commonwealth as reciprocal discovery; (5) Kinscherff should have been precluded from testifying after reviewing the defendant's suppressed videotaped confession; (6) the judge erred in failing to provide the jury with the defendant's requested instruction on adolescent brain development; (7) the Commonwealth did not introduce sufficient evidence to establish that the defendant raped and robbed the victim prior to her death; (8) the judge improperly applied the doctrine of inevitable discovery in denying a motion to suppress items seized from the defendant in Topsfield; (9) the prosecutor's remarks and actions exceeded the bounds of proper closing argument; (10) the judge abused his discretion in denying a motion for a change of venue due to pretrial publicity; and (11) the imposition of a forty year sentence on the aggravated rape and armed robbery charges was violative of proportionality requirements guaranteed by art. 26. We discuss each issue in turn.

a. The exclusion of the defendant's sMRI brain scan evidence. i. The expert disclosures and the evidentiary hearing. On July 13, 2015, a few months before trial, the

defense noticed its intent to offer Dudley's expert testimony concerning the defendant's mental state at the time of the alleged offense. On October 8, the second day of trial, the defense provided the Commonwealth with a report authored by Ruben Gur, Ph.D., the director of the Brain Behavior Laboratory and the Center for Neuroimaging in Psychiatry at the University of Pennsylvania's Perelman School of Medicine. Defense counsel retained Gur to conduct a "neurobehavioral assessment" of the defendant by volumetric analysis of sMRI brain scans. The results of the defendant's brain scans were compared with those of 190 healthy adults. In sum, Gur concluded, "Magnetic resonance imaging results of [the defendant's] brain show volume abnormalities indicating brain damage. The location and high degree of asymmetry of volumetric values is consistent with traumatic brain injury. These abnormalities are in regions that are very important for regulating emotions and behavior." He also opined that "[t]he etiology of the abnormalities needs to be established by clinical correlation but they are consistent with major psychiatric disorders such as schizophrenia or traumatic brain injury."

The defendant's brain scans, which were performed at a Boston hospital in September 2015 (two years after the crimes), were "examined quantitatively" by Dr. Theodore Satterthwaite. On October 21, the defense added Satterthwaite to its witness

list and provided notice of the subject matter of his expert opinion.

On November 18, 2015, Gur issued an addendum report comparing the defendant's brain scans to a cohort of fifteen through seventeen year olds. Gur explained that "since [the defendant] is still an adolescent, analysis was performed to make a more valid comparison between [the defendant] and [sixty-one] healthy adolescents." The results of this comparison were consistent with the prior examination, with "abnormalities in more regions" of the brain. Regarding the etiology of the abnormalities, Gur restated that while clinical correlation is required, "they are consistent with major psychiatric disorders such as schizophrenia, or traumatic brain injury, or a combination."

The Commonwealth, on November 30, filed a motion to exclude the testimony of Gur and Satterthwaite as failing to meet Daubert-Lanigan reliability standards, or, in the alternative, as being unduly prejudicial. See Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 585-595 (1993); Commonwealth v. Lanigan, 419 Mass. 15, 24-26 (1994); Mass. G. Evid. § 403 (2024). The defense, in turn, moved for a Daubert-Lanigan hearing to admit Gur and Satterthwaite's testimony that the sMRI brain scans showed volumetric reductions in regions of the brain

consistent with schizophrenia, and that these abnormities were "likely present at age fourteen."

On December 3, the judge conducted a voir dire hearing at which Gur and Satterthwaite testified. Gur described the methods utilized to measure the volume of the defendant's brain structures with sMRI technology. He testified that sMRI brain scans are commonly used in research to link brain volume to behavior and "[are] in widespread use to detect various conditions." The values for the defendant's brain scans were then compared to sixty-one healthy adolescents. Gur opined that the defendant's brain, as compared to the control group, showed volumetric abnormalities in particular regions of the brain consistent with schizophrenia. The correlation between volumetric abnormalities in certain regions in the brain and schizophrenia, according to Gur, is generally accepted in the scientific community as referenced in the DSM-V.[7]

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[7] Among the associated features supporting a diagnosis of schizophrenia, the DSM-V notes: "Currently, there are no radiological, laboratory, or psychometric tests for the disorder. Differences are evident in multiple brain regions between groups of healthy individuals and persons with schizophrenia, including evidence from neuroimaging, neuropathological, and neurophysiological studies. Differences are also evident in cellular architecture, white matter connectivity, and gray matter volume in a variety of regions such as the prefrontal and temporal cortices. Reduced overall brain volume has been observed, as well as increased brain volume reductions with age." American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders 101-102 (5th ed. 2013).

On cross-examination, Gur stated that he was unaware whether the adolescents in the control group were followed and reevaluated to determine whether any participants were later diagnosed with mental illness. He conceded that schizophrenia is diagnosed by behavior, not through "radiological[,] laboratory[,] or psychometric test[ing]." Gur explained: "[I]f you do have [magnetic resonance imaging], then that will help you confirm your diagnosis. But right now the diagnosis is based entirely on behaviors, which is really what will be changing as we speak."

Next, Satterthwaite testified to the common use of volumetric analysis as a research tool to study brain development, normal brain aging, and "neuropsychiatric disorders such as schizophrenia and bipolar disorder." It is not used, however, in clinical practice. He agreed with Gur's assessment that the pattern of volume loss in particular regions of the defendant's brain was "globally consistent with what we often see in schizophrenia." Unlike Gur, Satterthwaite did not testify that the sMRI scans could be used to confirm a diagnosis. He also stated that the brain undergoes "a lot of volumetric changes" throughout the developmental process.

The sample size of sixty-one adolescents, Satterthwaite noted, was "actually quite large" as compared to those typically used in research studies and sufficient to compare the

defendant's brain to the "normal range" of the control group. At the same time, he expressed a concern that "the number of scans here limits our statistical power to detect abnormality." It was possible to combine databases, but that was not done here.

Following the hearing, the defendant proffered the testimony of Satterthwaite, not Gur. Defense counsel further clarified that she did not intend to use chalks or introduce "fancy pictures" (referring to three-dimensional brain scan images reproduced in Gur's report).

ii. The ruling. At the close of the voir dire hearing, the judge dictated his findings and rulings into the record, announcing that he would not permit Satterthwaite to testify as an expert witness. He first reasoned that "the MRI of the defendant's brain in 2015 [was] of extremely limited probative value as it relate[d] to the defendant's mental state in October of 2013." Second, he explained that Satterthwaite's testimony did not satisfy gatekeeper reliability, where members of the control group were not the same age as the defendant at the time of the incident, and where they were not followed and reevaluated "to see whether they ever developed brain disorders." Third, "[t]he inference the jury would be asked to draw would be that since the volumetric values of the defendant's brain are consistent with somebody with

schizophrenia, . . . the defendant has schizophrenia," which was an impermissible inference because that diagnosis is "based on behavioral observations."

The judge also excluded the expert testimony on the ground that the limited probative value of the defendant's mental state in 2015, as demonstrated through sMRI brain scans, was substantially outweighed by the danger of unfair prejudice. See Mass. G. Evid. § 403.

iii. Renewed motion to admit brain scan evidence. When the trial resumed, the prosecutor raised the possibility of the defendant's malingering in her cross-examination of Dudley. Dudley admitted that he relied on the defendant's self-reported symptoms and did not order psychological testing. Psychological testing, he later explained, was inappropriate for an adolescent suffering from psychotic or trauma-related symptoms. Dudley further answered that he did order a different type of testing (implicitly referring to the sMRI brain scans). This line of inquiry, the defendant contended, opened the door to admission of the sMRI brain scan test results.

The judge allowed the defense to ask Dudley whether he, in fact, requested brain scan testing and considered the results in forming his opinion. "What the testing [was]," the judge ruled, "is not pertinent." Dudley then testified: "I requested a form of testing where there are scans of the brain to look for

whether there are actual changes in the brain that are consistent with the diagnosis of a psychotic disorder." The test results, which he received after writing his report, were considered by Dudley in forming his opinion that the defendant suffered from mental illness at the time of the incident. Dudley, however, was not permitted to answer whether the brain scans were consistent with his opinion that the defendant suffered from a psychotic disorder. In addition, the judge sustained objections to questions posed to the teaching expert Dvir concerning volumetric differences in the brains of juveniles and adults diagnosed with schizophrenia and whether there are "physical manifestations of schizophrenia in the brain."

After the Commonwealth's rebuttal evidence, the defendant moved to admit the testimony of Gur or Satterthwaite "to rebut the neuro-psych and psychological testimony that [the defendant] [was] malingering." The brain scans, the defendant pointed out, were taken roughly at the same time as Hebben's testing, and "provide strong evidence" that the defendant suffered from schizophrenia. He argued that "this would be evidence that [the defendant], in fact, had legitimate, severe mental health symptoms," admissible to challenge the Commonwealth's allegations of feigned mental illness. The judge denied the motion on the grounds that he did not credit Gur and

Satterthwaite's testimony, which "[did] not come close to satisfying the Frye general acceptance, or the Daubert-Lanigan factors."

Addressing Gur's testimony, the judge stated: "Dr. Gur couldn't answer one question directly[,] [w]ent off on tangents, and his overall demeanor left me in the position that I have to take under [Mass. G. Evid. § 104(a)], determining preliminary questions of fact, that he -- I believe that what he was an advocate for his area of interest and . . . an advocate for his university. . . . So the problem with Dr. Gur is I don't believe him. I just don't believe him."

Satterthwaite's testimony, the judge concluded, failed to satisfy gatekeeper reliability for the following reasons. First, there was no evidence that the volumetric abnormalities bore on the question whether the defendant was malingering, and the uncontroverted testimony was that someone may both suffer from a mental illness and malinger. Second, the judge reiterated his previously stated reasons from the individual voir dire hearing as to why the proffered expert testimony failed gatekeeper reliability, while emphasizing that "the DSM-[V] specifically cautions that diagnosis of schizophrenia cannot be made on the basis of laboratory testing." In addition, the judge once again determined that the probative value of the proffered expert testimony was substantially

outweighed by the risk of unfair prejudice. See Mass. G. Evid. § 403.

iv. Standard of review. "The decision to exclude expert testimony rests in the broad discretion of the judge and will not be disturbed unless the exercise of that discretion constitutes an abuse of discretion or other error of law." Commonwealth v. Ridley, 491 Mass. 321, 326 (2023), quoting Commonwealth v. Fernandes, 487 Mass. 770, 778 (2021), cert. denied, 142 S. Ct. 831 (2022). See Canavan's Case, 432 Mass. 304, 310-311 (2000). A judge abuses his or her discretion if "the judge made a clear error of judgment in weighing the factors relevant to the decision, such that the decision falls outside the range of reasonable alternatives" (quotation and citation omitted). L.L. v. Commonwealth, 470 Mass. 169, 185 n.27 (2014).

In addition to the judge's gatekeeper role under Daubert-Lanigan, a judge assessing the admissibility of expert testimony also has a "general duty to exclude evidence that is irrelevant or for which the probative value is substantially outweighed by the risk of unfair prejudice, confusion, or waste of time." Commonwealth v. Hoose, 467 Mass. 395, 417 (2013). See Commonwealth v. Bonds, 445 Mass. 821, 831 (2006) ("we rely on a trial judge to exercise discretion in admitting only relevant evidence whose probative value is not substantially outweighed

by its prejudicial or cumulative nature"); Commonwealth v. Patterson, 445 Mass. 626, 639 n.10 (2005) (expert testimony must be relevant as well as satisfy gatekeeper reliability). "We review a judge's decision whether the probative value of evidence is substantially outweighed by the danger of unfair prejudice under the abuse of discretion standard." Commonwealth v. Yat Fung Ng, 491 Mass. 247, 264 (2023). Under this standard, we do not disturb the judge's ruling "absent a clear error of judgment in weighing the relevant factors" (citation omitted). Id.

v. Application. The parties vigorously dispute the judge's Daubert-Lanigan ruling. The defendant argues that he was prejudiced by the judge's exclusion of expert testimony necessary to support Dudley's opinion that the defendant was in the throes of a psychotic episode at the time of the murder. The judge's dismissal of sMRI-based volumetric analysis as a mere "research tool" that is "not used in clinical treatment," he argues, was a misapplication of the Daubert-Lanigan standard. The Commonwealth, on the other hand, emphasizes that the issue before the judge was "not the validity in general of sMRI as a tool to measure brain volume or the fact that research has linked volumetric reductions to schizophrenia." Rather, it was the reliability of sMRI imaging of the defendant's sixteen year old brain to support an inference that he suffered from

schizophrenia at the time of the incident, even though "the defendant was not (and has never been) diagnosed with schizophrenia." We need not reach the correctness of the judge's Daubert-Lanigan determination, however, because the judge relied on an adequate alternative ground to exclude the sMRI brain scan testimony.

The judge acted within his discretion in ruling that the probative value of the proffered expert testimony was substantially outweighed by unfair prejudice. See Hoose, 467 Mass. at 417; Mass. G. Evid. § 403. On this record, the judge was entitled to determine that the probative value of the sMRI brain scan results was diminished by questions raised about the adolescent cohort comparison. He observed, "Nobody in the study was of the same age of the defendant at the time of the incident." This was significant because, as Satterthwaite testified, the brain undergoes "a lot of volumetric changes" throughout the developmental process. Adding to the judge's concerns about the cohort, he noted that "there's no indication of whether the sixty-one youths . . . were followed to see whether they ever developed brain disorders." The judge also considered the undisputed testimony that sMRI brain scans may not be used to diagnose schizophrenia absent clinical findings. Despite this undisputed testimony, Satterthwaite would have essentially invited the jury to speculate that "since the

volumetric values of the defendant's brain are consistent with somebody with schizophrenia, . . . the defendant has schizophrenia."

Additionally, in assessing the probative value of Satterthwaite's proffered testimony, the judge relied on a 2014 Emory University multidisciplinary consensus conference report which, he stated, raised "serious cautions" about the use of neuroimaging data in criminal cases. The report states:

> "The practice of performing imaging studies on a defendant in order to shed light on brain function or state of mind at the time of a prior criminal act is problematic. The retrospective nature of this evaluation makes it particularly difficult to attribute causality to specific imaging findings. Current brain imaging methods cannot readily determine whether a defendant knew right from wrong or maintained criminal intent or mens rea at the time of the criminal act. Also, there is an inherent difficulty in translating mechanistic (neural) system data into human behavior."

Meltzer et al., Guidelines for the Ethical Use of Neuroimages in Medical Testimony: Report of a Multidisciplinary Consensus Conference, 35 Am. J. Neuroradiology 632, 635 (2014).

The judge was also warranted in determining that the expert testimony would be unduly prejudicial to the government. The evidence invited the jury to impermissibly speculate that the defendant had, in fact, been diagnosed with schizophrenia based on objective sMRI studies. The prejudice could not be, as the judge determined, "mitigated through cross-examination."

We also discern no abuse of discretion in the judge's exclusion of this evidence on surrebuttal to refute evidence of malingering. The judge credited testimony from Kinscherff that raised significant questions about the probative value of the sMRI brain scan results. Specifically, Kinscherff testified, "given the existing state of science," a diagnosis of schizophrenia "cannot be made on the basis of laboratory testing." Additionally, although Kinscherff acknowledged that brain volume reductions are associated with schizophrenia, he explained that "they are [also] associated with normal aging . . . [and] a lot of different conditions. So . . . it is not pathognomonic [(distinctly characteristic of a disease)] or specific to schizophrenia." Finally, it was undisputed that a person could suffer from a mental illness (as the defendant argued the sMRI brain scan demonstrated), and still exaggerate symptoms of mental illness.

In sum, we discern no abuse of discretion in the judge's decision to exclude the expert testimony because its probative value was substantially outweighed by the danger of unfair prejudice.

b. The limitations on the defendant's direct examination of his expert. The defendant next contends that he was unable to present a complete criminal responsibility defense because the judge precluded Dudley from testifying on direct examination

to statements made by the defendant during his forensic interviews with Dudley. While acknowledging the general prohibition against the introduction of such evidence, see Department of Youth Servs. v. A Juvenile, 398 Mass. 516, 532 (1986), he argues that the statements were admissible under two evidentiary hearsay exceptions, see Mass. G. Evid. § 803(3), (4), or the narrow constitutionally based exception for statements critical to the defense, see Commonwealth v. Drayton, 473 Mass. 23, 25 (2015), S.C., 479 Mass. 479 (2018). Because the defendant objected based on the foregoing evidentiary rules, we review to determine whether the exclusion of the evidence was error and, if so, whether it was prejudicial. See Yat Fung Ng, 491 Mass. at 263 n.17.

Dudley interviewed the defendant seven times from March to December 2015. The details of these interviews, the defendant claims, reveal the true nature of his delusionary and hallucinatory world. In particular, the defendant made statements during these interviews that involved his obsession with anime and his belief that he was "a Manga character or a Ninja."[8] The defendant also told Dudley that he was hearing voices. The voices said negative things about him, directed him

[8] Manga are "Japanese comic books and graphic novels considered collectively as a genre." Merriam-Webster Online Dictionary, https://www.merriam-webster.com/dictionary/manga [https://perma.cc/42K5-LS3A].

to do things, made him feel helpless because he could not control them, and pulled him "deeper and deeper in."

The judge denied the defendant's motions in limine to admit this evidence on direct examination. He explained, citing the then-recently decided case of Commonwealth v. Chappell, 473 Mass. 191, 204-205 (2015), that this court's precedent is well settled: an expert witness may rely on facts or data not in evidence in formulating an opinion, but the expert cannot testify to the substance or contents of that information on direct examination. The judge added that this case law does not preclude an expert witness from stating an opinion and the bases for that opinion absent the underlying facts and data. The defendant objected, arguing that the ruling had "hamstrung" his case to the point that the criminal responsibility defense had been "eviscerated."

An expert witness may base an opinion on "(1) facts personally observed; (2) evidence already in the records or which the parties represent will be admitted during the course of the proceedings, assumed to be true in questions put to the expert witnesses; and (3) facts or data not in evidence if the facts or data are independently admissible and are a permissible basis for an expert to consider in formulating an opinion" (quotation and citation omitted). Commonwealth v. Markvart, 437 Mass. 331, 337 (2002). See Mass. G. Evid. § 703. As the trial

judge here correctly noted, while an expert may provide an opinion based on facts or data not in evidence, "the expert may not testify to the substance or contents of that information on direct examination." Department of Youth Servs., 398 Mass. at 531. See Commonwealth v. Piantedosi, 478 Mass. 536, 543 (2017); Chappell, 473 Mass. at 203; Mass. G. Evid. § 703. The rationale for this limitation is to prevent the proponent of the expert testimony from "import[ing] inadmissible hearsay into the trial." Commonwealth v. Goddard, 476 Mass. 443, 448 (2017). That is, "[d]isallowing direct testimony to the hearsay basis of an expert opinion helps prevent the offering party from slipping out-of-court statements not properly in evidence in through the 'back door.'" Commonwealth v. Greineder, 464 Mass. 580, 583, cert. denied, 571 U.S. 865 (2013).

Notwithstanding the limitations on direction examination, the opposing party may, as a matter of trial strategy, elicit details of the facts or data underlying the expert's opinion on cross-examination. Markvart, 437 Mass. at 338. If the door is opened by the opposing party, on redirect examination, the proponent of the evidence then may introduce additional details surrounding the source of the expert's opinion. Chappell, 473 Mass. at 203–204. See Mass. G. Evid. § 705.

Here, the defendant maintains that the details of his forensic interviews were admissible on direct examination under

three exceptions to the hearsay rule: (1) statements for purpose of medical diagnosis or treatment, see Mass. G. Evid. § 803(4); (2) statements of then-existing mental, emotional, or physical condition, see Mass. G. Evid. § 803(3); (3) or the narrow, constitutionally based exception for statements that are critical to the defense. See Drayton, 473 Mass. at 33-35.

The defendant's reliance on the exception for statements made for purposes of diagnosis or treatment is foreclosed by our decision in Commonwealth v. Rodriguez, 484 Mass. 677 (2020). In that case, we rejected the defendant's argument that statements made to an expert psychiatrist in a forensic interview were admissible, without limitation, under Mass. G. Evid. § 803(4). Rodriguez, supra at 684. Notwithstanding an expert witness's reliance on such statements in reaching a mental illness diagnosis, this hearsay exception "does not apply where a defendant made his or her statements in the course of a court-ordered forensic interview or a forensic interview to determine criminal responsibility." Id. We explained that "[t]he reason for these forensic interviews is to assess the defendant for a legal purpose: to determine whether the defendant meets the legal definition of a 'mental disease or mental defect' and therefore cannot be held criminally responsible for the crime charged. . . . Therefore, the statements made during the course of these assessments do not carry the same inherent reliability

as statements made to a professional for purposes of medical treatment or diagnosis." Id. Accordingly, the judge properly rejected the defendant's claim that the statements made to Dudley in the forensic interviews were admissible under Mass. G. Evid. § 803(4).

Next, we address the defendant's argument that certain details of his forensic interview were admissible on direct examination as statements of a then-existing mental condition. See Mass. G. Evid. § 803(3). Notably, this exception does not cover out-of-court statements describing past symptoms of mental illness. See Commonwealth v. Schoener, 491 Mass. 706, 728 (2023); Yat Fung Ng, 491 Mass. at 260; Commonwealth v. Whitman, 453 Mass. 331, 342 & n.10 (2009).

The defense proffered Dudley's testimony that the defendant stated that "he thought he was a [manga] character" and "that he really is a Ninja." It is unclear whether these statements described the defendant's past or current mental states, or both. To the extent that the defendant sought to establish his past mental condition (i.e., that he thought he was a fictional character), the statement was not admissible as a statement of then-existing mental condition. See Whitman, 453 Mass. at 342.

In any event, whether the "Ninja" statement refers to the defendant's past or present mental condition, there is no

dispute that another proffered statement referred to the defendant's mental condition at the time of the expert's evaluation. The defendant told Dudley that he was hearing voices during the forensic evaluation. Dudley reported, "[H]e was hearing a voice (other than this psychiatrist's voice) . . . when this psychiatrist questioned him about the fact that he often appeared to be distracted and mumbling to himself."

The judge excluded the proffered statements as "not . . . within the contemplation of [the] then-existing mental or physical condition exception." The exception, he reasoned, does not apply to the "artificial environment" of an examination for criminal responsibility.[9] He further reasoned that a contrary ruling "would eviscerate the whole principle as it relates to the way expert testimony is addressed in the Commonwealth." See 2 McCormick on Evidence § 274 (R.B. Mosteller ed., 8th ed. 2020) (exception "rests upon the [statements'] spontaneity and resulting probable sincerity"); 6 Wigmore, Evidence § 1714 (Chadbourn rev. ed. 1976) ("statements . . . where there is ample opportunity for deliberate misrepresentation . . . are comparatively inferior to statements made at times when circumstances lessened the possible inducement to misrepresentation").

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[9] We note that the judge's decision predated Rodriguez, 484 Mass. 677.

Because the defendant was not prejudiced by the ruling, there is no need to decide whether the "artificial environment" of a forensic evaluation diminishes the reliability of a statement of then-existing mental condition. Dudley testified on direct examination that the defendant exhibited "auditory hallucinations" that "ebbed and flowed during the interviews" and delusional ideas that he "was kind of nonhuman with nonhuman powers." Dudley also described the defendant's auditory hallucinations on redirect examination: "[W]hat I was describing during my interviews with him is that I would ask him a question, . . . the voice would tell him to respond or not respond, and he would be responding to the voice and then not responding to me."[10] In light of the statements concerning the defendant's mental state that were admitted, we are sure that any error in the exclusion of any statements on direct examination "did not influence the jury, or had but very slight effect" (citation omitted). Yat Fung Ng, 491 Mass. at 263 n.17.

We also consider the defendant's claim that all of the details of his statements to Dudley were admissible under the narrow, constitutionally based exception to the hearsay rule. See Drayton, 473 Mass. at 25, 33-35 (recognizing "a narrow,

[10] Further, defense counsel argued to the jury that Dudley, utilizing his vast clinical experience, observed the defendant's auditory command hallucinations and delusional behavior.

constitutionally based exception to the hearsay rule, which applies where otherwise inadmissible hearsay is critical to the defense and bears persuasive guarantees of trustworthiness"). This exception applies "only where it is necessary to avoid injustice where constitutional rights directly affecting the ascertainment of guilt are implicated or where exclusion of evidence significantly undermines fundamental elements of a defendant's defense" (quotations, citations, and alterations omitted). Yat Fung Ng, 491 Mass. at 261. The defendant did not raise this argument in the trial court; therefore, we review for a substantial likelihood of a miscarriage of justice. Id. at 261 n.16. We find no error because admission of the statements on direct examination was not critical to the defense. As stated above, the defendant was able to introduce evidence of auditory hallucinations and delusional thinking through his expert witness. Furthermore, the defendant could have testified to his own then-existing mental state. See Commonwealth v. Dame, 473 Mass. 524, 533 n.17, cert. denied, 580 U.S. 857 (2016).

Finally, the defendant argues that his statements were admissible on Dudley's redirect examination to rebut the claim elicited by the Commonwealth that the defendant was malingering. However, in excluding evidence of the defendant's statements, the judge emphasized that his ruling was confined to Dudley's

direct examination, not redirect. He stated, "I'm not ruling, at this moment, on redirect. . . . I haven't heard the cross. I haven't even heard the direct." Thereafter, the defendant did not ask the judge to decide this evidentiary issue. Therefore, even assuming the Commonwealth opened the door to allow the defendant to introduce his statements on redirect examination of Dudley, no error was committed by the judge.

c. The Commonwealth's cross-examination of the defendant's experts. The defendant further contends that he is entitled to a new trial because the prosecutor was permitted to cross-examine defense experts on irrelevant and prejudicial topics. In particular, he claims that the judge erred in permitting the prosecutor to inquire about (1) the possibility that the defendant suffered from antisocial personality disorder (ASPD); (2) Dudley's testimony in infamous criminal cases; and (3) an article written by Dudley concerning the strategic use of psychological testing in death penalty mitigation cases.

We first consider the defendant's claim that the prosecutor improperly elicited testimony "insinuating" that the defendant suffered from ASPD. This was prejudicial error, the defendant argues, because ASPD cannot be diagnosed in someone under the age of eighteen. He maintains also that the judge should have permitted Dudley to rebut the suggestion of ASPD on redirect

examination through testimony that the defendant's mental condition improved while he was medicated on Risperdal.

The relevant portions of expert witness examination proceeded as follows. Defense expert Jackson testified, on direct examination, that he prescribed the defendant Risperdal, "an anti-psychotic medication that's quite efficacious for helping people organize their thinking." As a result, the defendant seemed "significantly more present and engaged," "calmer and less anxious," and "better able to organize his thinking and his communication with others." On cross-examination, the prosecutor asked Jackson whether the defendant exhibited signs of a personality disorder, such as an absence of empathy or inability to connect with other people. The prosecutor also asked whether ASPD "would be a disorder for which those things are true." Defense counsel objected on the ground that the defendant was too young to be diagnosed with ASPD. At sidebar, the judge sustained the objection and would not take the testimony de bene without further foundation. The prosecutor countered that ASPD is a potential differential diagnosis and offered to limit her inquiry to the last question. Defense counsel withdrew her objection. Jackson then testified that lack of empathy, connections to others, and remorse are characteristics of ASPD.

On redirect examination of Dudley, the defendant sought to admit evidence of Dudley's late-trial interview of the defendant, which was not timely disclosed to the prosecutor. The proffered testimony, according to the defense, was to be limited to "improvements in [the defendant's] condition . . . due to the [Risperdal], the antipsychotic medication." The judge excluded the evidence, determining that its "extremely limited" probative value was substantially outweighed by the danger of unfair prejudice caused by delayed disclosure.

We find no prejudicial error in the judge's rulings regarding the scope of cross- and redirect examination. See Commonwealth v. Chicas, 481 Mass. 316, 320 (2019) (judge's discretion to limit scope of examination); Mass. G. Evid. § 611(a) (court may exercise reasonable control over mode and order of witness examination). Jackson disagreed with the suggestion that the defendant suffered from a personality disorder. Rather than litigate the issue whether the defendant's age precluded such a diagnosis, the defendant withdrew his objection to a final question concerning characteristics of ASPD. Thereafter, Dudley testified that a personality disorder cannot "technically" be diagnosed at age fourteen or fifteen. He nonetheless "look[ed] for some of the kinds of behavioral difficulties or symptoms that we see early on in people who tend to develop certain personality disorders,"

and found none. Kinscherff, the Commonwealth's expert, did not diagnose the defendant with ASPD, and the prosecutor did not mention it in her closing argument.

Likewise, the judge did not abuse his discretion in excluding Dudley's opinion on the positive effects of Risperdal, as it was cumulative. Prior to Dudley's redirect examination, Jackson testified to the efficacy of Risperdal in treating the defendant's mental condition. Indeed, defense counsel, seeking to rebut the Commonwealth's claim of malingering, argued to the jury: "[Jackson] treated those things [(disorganized thoughts, flat affect, and social withdrawal)] with an antipsychotic medication, Risperdal. This was not that long ago. And what happened? There was a marked change in [the defendant], not based on [the defendant's] report, but based on Doctor Jackson's observations . . . ."

The defendant next argues that the judge erred in permitting cross-examination of Dudley regarding his role as an expert witness in infamous murder cases, while prohibiting the defendant from offering evidence that Dudley testified in Hague genocide cases. We find no abuse of discretion. See Chicas, 481 Mass. at 320. On direct examination, Dudley testified that he mostly appears as a defense witness because "[t]hat's who calls [him]." The Commonwealth inquired into Dudley's potential bias. See Commonwealth v. Aguiar, 400 Mass. 508, 513 (1987)

(right to cross-examine on issue of bias). The prosecutor asked Dudley about his role as a defense expert in three infamous criminal cases: (1) the case of Colin Ferguson, "who shot people on the Long Island Commuter Rail"; (2) the case of Brian Nichols, "who killed a judge and three other people in Atlanta"; and (3) the case of "one of the defendants in the Cheshire, Connecticut[,] home invasion rape and murder of a mother and her two daughters." The judge provided an immediate and forceful limiting instruction that this evidence was to be considered solely as to Dudley's pro-defense bias. See Commonwealth v. Jones, 373 Mass. 423, 426 (1977) (it is normally assumed jury follow judge's instructions).

Dudley, on redirect examination, informed the jury that he testifies in many criminal and civil cases "where there's been no publicity." He added, "I've recently done several Hague Convention cases, which are kind of kept quiet." The judge sustained the prosecutor's objection to the question, "What are Hague Convention cases?" At sidebar, defense counsel insisted that Dudley be permitted to define "what the Hague Convention is." Asked for an offer of proof, defense counsel admitted that she did not know how Dudley would answer this question. The judge invited defense counsel to talk to Dudley during recess, and "come back to it." The defense declined to revisit the issue.

Finally, we find no abuse of discretion in the judge's decision to allow the Commonwealth to cross-examine Dudley regarding an article he authored on developing mitigation evidence in capital cases. The Commonwealth asked Dudley about portions of that article where he cautioned defense counsel against prematurely ordering psychological testing. Dudley explained that counsel should gather records, "really try to get to know who this client is," and select a mental health expert "who's going to be most helpful . . . given what your client's needs are." When pressed by the prosecutor, Dudley answered that the wrong psychological testing could undermine the defense's case. The prosecutor finished this line of inquiry by highlighting the fact that Dudley was late to order "psychological" testing in this case.

The Commonwealth was entitled to ask Dudley about the strategic use of psychological testing. To the extent that the inquiry strayed from this purpose, the defendant was not prejudiced by the cross-examination. Dudley emphasized that the article was written to set a national standard of practice in capital cases, which are "very different" from criminal responsibility cases. Furthermore, Dudley explained that he ordered sMRI brain scan testing in this case under the belief that this type of testing would provide "clear[er]" results than psychological testing, and that he considered the brain scan

results in reaching his diagnosis of psychosis not otherwise specified.

d. The disclosure of raw test data from the defendant's nontestifying expert consultants. At trial, on the Commonwealth's motion, the judge ordered the defense to produce raw data from psychological tests administered by the nontestifying expert consultants. The defendant objected to the order, arguing that the rules governing pretrial discovery do not compel disclosure of raw data from tests that were not requested or reviewed by the defendant's testifying expert. We hold, first, that the judge abused his discretion in compelling disclosure of the raw data in these circumstances. Second, we hold that the judge's abuse of discretion did not result in prejudicial error.

i. Background. Pursuant to Mass. R. Crim. P. 14 (b) (2), as appearing in 463 Mass. 1501 (2012), the defendant provided notice of his intent to offer expert testimony regarding the defendant's mental condition, which would rely, in part, on his statements.[11] The Commonwealth then moved for a court-ordered examination of the defendant by its testifying expert,

[11] "If the notice of the defendant . . . indicate[s] that statements of the defendant as to his or her mental condition will be relied upon by a defendant's expert witness, . . . the defendant [may be ordered] to submit to an examination." Mass. R. Crim. P. 14 (b) (2) (B).

Kinscherff, and further requested an order that Kinscherff be provided "any psychiatric, psychological and/or medical records or testing of the defendant . . . regardless of whether they will be provided to or relied upon by the defense expert in forming any opinions." The Commonwealth similarly moved for a court order requiring the defendant to disclose the specified raw data to another one of its testifying experts, Hebben, who intended to assist Kinscherff with his evaluation by conducting her own psychological testing. The defendant objected that, "[t]o the extent that the Commonwealth's proposed order encompasses records other than those provided to the defense experts[,] . . . it should be denied as outside the scope of discovery expressly provided for by [rule 14 (b) (2)] as modified by Hanright." See Commonwealth v. Hanright, 465 Mass. 639, 648-649 (2013). The defendant explained that (1) he had no intention of calling the expert consultants who had performed the relevant tests and (2) his testifying expert, Dudley, had neither reviewed nor relied upon the raw data generated by those tests in forming his opinion.

The judge allowed the Commonwealth's motions and stated, with respect to the request for raw data:

> "The present case is dissimilar to the situation contemplated in Commonwealth v. Sliech-Brodeur, 457 Mass. 300, 321 (2010), where the Commonwealth's expert was 'not entitled to any of [the defense expert's] materials before trial and before he had prepared his own report . . . .'

> The court's decision is based on the 'anti-cherry picking' spirit of the . . . same records rule established in [Hanright, 465 Mass. at 644 & n.4] ('[i]t is only fair that the Commonwealth have the opportunity to rebut the defendant's mental health evidence using the same records that should be made available to defendant's medical expert')."

The defense thereafter complied with the judge's order, providing the raw data to both Hebben and Kinscherff. Included in the raw data were the results of two types of intelligence quotient (IQ) tests: (1) the Wechsler Intelligence Scale for Children (WISC), which the defendant completed in March 2014; and (2) two subtests from the Wechsler Adult Intelligence Scale (WAIS), which the defendant completed in June 2015.

The Commonwealth utilized divergent results in the IQ scores to bolster its claims that the defendant was malingering and not suffering from a mental disease or defect. In cross-examining Dudley, the prosecutor pointed out that the defendant's WISC scores ranged from average to above-average intelligence. Thereafter, in June 2015, he scored below the first percentile on the WAIS. Dudley acknowledged that intelligence does not change over the course of a lifetime. The prosecutor suggested that the results of the subsequent IQ testing were attributable to malingering. Dudley testified that he "considered [the IQ test results], and [they] didn't change [his] opinion."

In addition, the prosecutor brought out the disparity in IQ test scores through Hebben. On direct examination, Hebben testified that she reviewed the raw data after completing her testing and reached her own independent conclusions. Her opinion was "based solely on the data that [she] personally collected." Then, on redirect examination, she explained that the WISC and WAIS IQ tests are highly correlated -- and therefore, varying scores "[did] not make any sense at all," absent a significant brain injury. The only explanation, she opined, was that "[t]he person was purposefully feigning that [he was] unable to do now cognitive tests."

ii. Standard of review. "This court upholds discovery rulings unless the appellant can demonstrate an abuse of discretion that resulted in prejudicial error" (quotations, citation, and alteration omitted). Commonwealth v. Torres, 479 Mass. 641, 647 (2018). As noted previously, a judge commits an abuse of discretion where he or she "made a clear error of judgment in weighing the factors relevant to the decision, such that the decision falls outside the range of reasonable alternatives" (quotation and citation omitted). L.L., 470 Mass. at 185 n.27. With respect to prejudicial error, the controlling question is whether the appellate court can be "sure that the error did not influence the jury, or had but very slight effect" (citation omitted). Commonwealth v. Flebotte, 417 Mass. 348,

353 (1994). An error is prejudicial if there is a "reasonable possibility that [it] might have contributed to the jury's verdict" (citation omitted). Commonwealth v. Crayton, 470 Mass. 228, 253 (2015).

iii. Analysis. There is some disagreement between the parties about what law of pretrial discovery applies. The Commonwealth argues that Mass. R. Crim. P. 14 (b) (2) (C) (i) (2016) applies, under which defendants subject to a rule 14 (b) (2) (B) examination "shall . . . make available to the examiner . . . [a]ll raw data from any tests or assessments administered to the defendant by the defendant's expert or at the request of the defendant's expert." The defendant emphasizes that rule 14 (b) (2) (C) (i) was promulgated one month after trial in this case. Accordingly, the defendant frames his argument in terms of rule 14 (b) (2) as it existed when the motion judge allowed the Commonwealth's motion. Specifically, the defendant points to Hanright's "same records" rule, "whereby a defendant is to provide the rule 14 (b) (2) (B) examiner with the same records provided to or considered by the defense expert." Hanright, 465 Mass. at 648–649.

We hold that both Hanright and rule 14 (b) (2) (C) (i) point to the same conclusion: the motion judge erred in compelling disclosure of raw data from tests that were neither administered nor requested by the defendant's testifying expert.

We will first explain why Hanright's "same records" rule does not extend to raw data from tests exclusively administered by nontestifying experts. We will then explain why rule 14 (b) (2) (C) (i) reinforces, and does not disturb, that holding.

As a threshold matter, we emphasize that Hanright concerned a defendant's disclosure obligations with respect to historical treatment records. See Hanright, 465 Mass. at 648. Indeed, the anti-"cherry picking" principle, one of our considerations in formulating the "same records" rule, expressly refers to treatment records: "We are . . . concerned that a defendant may 'cherry pick' from amongst his or her treatment records . . . ." Id. Hanright did not concern a defendant's disclosure obligations with respect to materials contemporaneously generated by the defense. We were explicit on this point: "Unlike access to materials generated contemporaneously by the defense, allowing a rule 14 (b) (2) (B) examiner access to a defendant's treatment records is part and parcel of a rule 14 (b) (2) (B) examination. Our conclusion . . . permits discovery of materials that are available to, as opposed to generated by, the defense . . . ." Id. at 645 (distinguishing treatment records from notes and materials generated by defendant's psychiatric expert in Sliech-Brodeur, 457 Mass. 300).

Psychological tests administered by a consulting expert in the context of exploring potential defenses based on mental condition exemplify "materials generated contemporaneously by the defense." Furthermore, "materials generated contemporaneously by the defense" are different from historical treatment records in several relevant respects. For one, historical treatment records carry a presumption of reliability that does not necessarily apply to materials generated for purposes of the defense. See, e.g., Commonwealth v. Wall, 469 Mass. 652, 667 (2014) (hospital records are distinctively reliable, "because the entries relating to treatment and medical history are routinely made by those responsible for making accurate entries and are relied on in the course of treating patients" [citation omitted]). More broadly, psychological data generated by the defense implicates concerns about self-incrimination, attorney-client privilege, and the work product doctrine that are not implicated by treatment records generated outside the context of litigation. See, e.g., Blaisdell v. Commonwealth, 372 Mass. 753, 757-759 (1977) (discussing burdens of court-ordered psychiatric examinations on privilege against self-incrimination). Because of these relevant differences, Hanright's "same records" rule for treatment records does not apply to materials contemporaneously generated by the defense.

More fundamentally, even if Hanright's "same records" rule were extended to contemporaneously generated defense materials, it could not reasonably be extended to materials generated by nontestifying experts. When this court instituted the requirement for a defendant to "provide the rule 14 (b) (2) (B) examiner with the same records provided to or considered by the defense expert," it was plain that our use of the term "defense expert" referred to the defense's testifying expert. Hanright, 465 Mass. at 649. This reflects the motivation behind the "same records" rule -- to ensure, out of fundamental fairness, that both the Commonwealth's and the defense's experts have access to the same materials in forming the requisite opinions and writing the requisite reports. And only experts expected to testify need do so. "It is only fair that the Commonwealth have the opportunity to rebut the defendant's mental health evidence using the same resources that should be made available to [the] defendant's medical expert. . . . A system in which only the defendant's expert may use the defendant's medical and psychiatric records to form an opinion regarding the defendant's mental health would have a distorting effect on the fact finder's role, and would undermine society's conduct of a fair inquiry" (quotations and citations omitted). Id. at 644-645. See id. at 643-644 ("Because review of treatment records is necessary, both to conduct a meaningful examination and to

produce the requisite report, discovery of a defendant's treatment records is permitted pursuant to rule 14 [b] [2] [B]").

Subsequent changes to rule 14 (b) (2) confirm our conclusion that only psychological data generated by testifying defense experts is subject to mandatory disclosure. Specifically, in 2015, the standing advisory committee on the rules of criminal procedure responded to our request in Hanright, 465 Mass. at 648, to "consider the scope of requisite disclosure and to propose a mechanism whereby both the defense expert and the rule 14 (b) (2) (B) examiner have an equal opportunity to access the records they deem necessary to conduct a psychiatric evaluation, while preserving a defendant's ability to object to such disclosure." With respect to raw data in particular, the result was Mass. R. Crim. P. 14 (b) (2) (C) (i), providing in relevant part that a defendant subject to a rule 14 (b) examination shall "make available to the examiner . . . [a]ll raw data from any tests or assessments administered to the defendant by the defendant's expert or at the request of the defendant's expert."

Although the text of rule 14 (b) (2) (C) (i) does not expressly identify "the defendant's expert" with "the defendant's testifying expert," both the context and purpose of rule 14 (b) (2) (C) make clear that this is the only reasonable

interpretation. As a textual matter, the multiple references to defense "experts" in rule 14 (b) (2) concern experts who are expected to testify. See, e.g., Mass. R. Crim. P. 14 (b) (2) (A) (notice of intent to raise mental condition defense must state "whether the defendant intends to offer testimony of expert witnesses" and "the names and addresses of expert witnesses whom the defendant expects to call"); Mass. R. Crim. P. 14 (b) (2) (B) ("The reports of both parties' experts must include a written summary of the expert's expected testimony . . ."). Indeed, at no point does rule 14 (b) (2) reference a defense "expert" who is not expected to testify. Moreover, the purpose of the raw data disclosure requirement articulated in the Reporter's Notes explicitly appeals to the relevance of raw data for expert reports. See Reporter's Notes (2015) to Mass. R. Crim. P. 14 (b) (2) (C), Massachusetts Rules of Court, Rules of Criminal Procedure, at 382 (Thomson Reuters 2023) ("The raw testing data that Rule 14[b][2][C][i] requires the defendant to produce consists of objective, uninterpreted test results . . . . The intent is to provide both experts with all of the relevant, objective testing data available at the time each writes his or her report, thus avoiding the need for supplemental reports or evaluations that consider pertinent testing data first revealed in the other expert's report").

In sum, the motion judge's reliance on Hanright to justify compelled disclosure of raw data from psychological tests neither requested nor reviewed by the defendant's testifying expert was an error of law.

iv. Prejudicial error. It is a further question whether the motion judge's order qualified as prejudicial error. We hold that it did not. Dudley insisted that the IQ test scores did not change his opinion. Kinscherff did not mention the raw testing data; rather, his opinion rested primarily on video and witness accounts depicting the defendant's actions, Casey's tests showing an absence of psychosis, and Hebben's conclusions showing likely malingering. Nor was the raw testing data in any sense critical to Hebben's conclusions. Hebben administered four psychological tests that were positive for signs of malingering and reached her opinion independent of the raw data supplied by nontestifying defense experts. This stands in contrast to the disclosure deemed harmful in Sliech-Brodeur, 457 Mass. at 322-323, where the disclosed data was "one of the foundational reasons supporting [the Commonwealth expert's] opinion that the defendant was criminally responsible" such that "the over-all strength of the Commonwealth's case relied heavily on . . . a large quantity of materials that were erroneously provided to [the Commonwealth expert]." Finally, although the prosecutor briefly mentioned discrepancies between the disclosed

raw data and performance on subsequent tests administered by Hebben in closing argument, we are assured that this "had but very slight effect" on the jury's verdict in light of the overall weight of the Commonwealth's evidence (citation omitted). Flebotte, 417 Mass. at 353. In these circumstances, we do not find a "reasonable possibility that the error[] might have contributed to the jury's verdict" (citation omitted). Crayton, 470 Mass. at 253.

e. The Commonwealth expert's review of the defendant's suppressed statements. The defendant claims that Kinscherff's testimony was irreparably tainted by his review of a suppressed Danvers police station interview. At the least, he argues, the judge was required to conduct a voir dire hearing to determine the extent of Kinscherff's reliance on this evidence in formulating his opinion. The judge's ruling permitting Kinscherff to testify, he contends, "was intensely prejudicial and violated [the defendant's] Miranda-based rights, as well as his rights to due process, against self-incrimination, and to confrontation."

i. Background. On March 3, 2015, the judge allowed the defendant's motion to suppress a videotaped statement at the Danvers police station. The judge determined that the Commonwealth failed to prove a valid waiver of Miranda rights beyond a reasonable doubt. Prior to the suppression order,

Dudley reviewed the Danvers police station statement as part of his forensic evaluation. After the suppression order, defense counsel instructed Dudley to not rely on the excluded evidence in forming an opinion about the defendant's mental state.

In July 2015, as discussed supra, the Commonwealth moved for a court order requiring the defendant to produce psychiatric, psychological, and medical records to Kinscherff. Later that day, during a pretrial hearing, defense counsel agreed to provide Kinscherff with all materials provided to Dudley. She stated, "I have no problem -- every record that Dr. Dudley has had I will send out immediately to the Commonwealth's expert." In a subsequent hearing that month, defense counsel stated that she had "sent to Dr. Kinscherff everything we have provided to our expert, Dr. Dudley," including "all the documents" and "records."[12]

The Commonwealth obtained a copy of both expert reports on July 22, 2015. Dudley's report indicated that he reviewed "reports, transcript[,] and video of [the defendant's] statement to the police on 23 October 2013." It was unclear whether the videotaped statements referenced in Dudley's report included the suppressed Danvers police station interview (along with

[12] The defendant does not dispute the Commonwealth's contention that the discovery supplied to Kinscherff by defense counsel included the suppressed Danvers police department videotaped statement.

subsequent interviews not subject to the suppression order). Meanwhile, Kinscherff incorporated portions of the defendant's suppressed statement into his ninety-six page report.

On the eve of trial, the defendant filed a motion to exclude Kinscherff's testimony on the ground that it was based, in large part, on the suppressed interview. The Commonwealth, in response, moved to compel Dudley to state the basis of his opinion. After defense counsel agreed to the Commonwealth's requested relief, Dudley drafted an addendum to his report. The addendum, submitted after the trial had commenced, states:

> "Defense counsel provided me with a transcript and video of [the defendant's] statement at the Danvers Police Department. However, in March 2015, counsel informed me that I was not to rely on this statement in forming my opinion because the [c]ourt had issued an order suppressing the statement. I therefore did not rely on the suppressed statement."

Defense counsel asked the court "to prohibit [Kinscherff] from testifying as the Commonwealth expert, or, in the alternative, prohibit [Kinscherff] from relying on the statement in any way in forming his opinion." She argued also that she could not effectively cross-examine Kinscherff without opening the door to the suppressed statements. Based on Kinscherff's reliance on sources other than the defendant's suppressed statement, the Commonwealth made an offer of proof that, "if asked during a voir dire[,] Doctor Kinscherff would say that none of his conclusions rely on the statement." The defendant

did not seek an evidentiary hearing to explore whether Kinscherff's opinion was tainted by exposure to the suppressed statements. See Department of Youth Servs., 398 Mass. at 532 ("If a party believes that an expert is basing an opinion on inadmissible facts or data, the party may request a voir dire to determine the basis of the expert's opinion"). See also Commonwealth v. Anestal, 463 Mass. 655, 668 (2012); Commonwealth v. Daye, 411 Mass. 719, 742 (1992).

Relying on his familiarity with Kinscherff's lengthy report, the judge denied the defendant's request to strike Kinscherff's testimony. He did, however, allow the defendant's alternative request and precluded Kinscherff from offering the suppressed statements as a basis for his opinion on direct examination. As for cross-examination, the judge indicated that questions framed by defense counsel concerning "the basis for [Kinscherff's] opinion provided on direct [examination]" would not open the door to suppressed statements.

ii. Analysis. "We review rulings on the admission of expert testimony for an abuse of discretion." Hoose, 467 Mass. at 416. The defendant, citing Commonwealth v. Vuthy Seng, 436 Mass. 537, cert. denied, 537 U.S. 942 (2002), argues that the judge's ruling precluding Kinscherff from mentioning the Danvers police station statements in his direct examination was not sufficient to cure the expert's "tainted" exposure to suppressed

evidence. Vuthy Seng is inapposite. The jury here, unlike the Vuthy Seng jury, never heard the suppressed statement. See id. at 547-548 (admission of defendant's statement made after defective Miranda warning was not harmless beyond reasonable doubt because "[t]he statements that the defendant made . . . were used by the Commonwealth to strike at the heart of his insanity defense").

Moreover, the record does not support the defendant's claim that Kinscherff's testimony was "clearly based" on his exposure to the suppressed Danvers police station statement. It was within the judge's discretion to accept the Commonwealth's offer of proof where Kinscherff's report detailed his reliance on various other sources of information, such as his interviews with the defendant, his classmates, and Tennessee witnesses; the results of several psychological tests taken by the defendant; and the defendant's educational and Department of Youth Services (DYS) records. See Commonwealth v. McDonough, 400 Mass. 639, 651 (1987). Furthermore, Kinscherff's trial testimony referenced admissible evidence, most notably the video recordings from school surveillance cameras.

The defendant's claim that the ruling "insulated" Kinscherff from effective cross-examination also fails. Defense counsel cross-examined Kinscherff on the topics of adolescent brain development, the DSM-V's statement that reduced brain

volume has been observed in persons with schizophrenia, and the fact that Kinscherff would "consider" volume reduction as shown in brain scans. At no point did defense counsel raise a concern that a particular line of inquiry would open the door to the suppressed statement.

Accordingly, the judge's decision to deny the defendant's motion to exclude the Commonwealth's expert witness and allow the defendant's alternative request for relief did not constitute an abuse of discretion.

f. The adolescent brain development jury instruction. In his next argument, the defendant contends that the judge erred in declining to instruct the jury on adolescent brain development. The defendant requested that the judge supplement the deliberate premeditation and extreme atrocity or cruelty portions of the then-existing model jury instructions on homicide to inform the jury: "You may also consider the defendant's age, developmental maturity, and capacity for reasoned decision-making." Noting that the defendant was free to argue the issue to the jury based on Kinscherff's testimony, the judge declined to instruct on adolescent brain development. Because the defendant raised a timely objection to the omitted instruction, we review for prejudicial error. See Commonwealth v. Kelly, 470 Mass. 682, 687 (2015).

There was no error. Based on brain science, social science, and common knowledge, it is well settled that adolescents are different from adults for constitutional purposes. Commonwealth v. Odgren, 483 Mass. 41, 48 (2019). See Commonwealth v. Mattis, 493 Mass. 216, 223 (2024), and cases cited. Our differential treatment of juvenile offenders, however, has been limited to sentencing and does not extend to a juvenile's capacity to formulate an intent to commit murder. See Odgren, supra at 46-48 (instruction permitting jury to infer criminal intent from use of dangerous weapon was fully applicable to juvenile offender). See also Commonwealth v. Brown, 474 Mass. 576, 590 n.7 (2016) (United States Supreme Court's focus in Miller v. Alabama, 567 U.S. 460 [2012], was on prohibition against cruel and unusual punishment as it applied to juvenile sentencing, not to "intent, knowledge or deliberate premeditation as elements of a crime"). We decline, as did the court in Odgren, supra at 48, to "except juveniles generally from application of our usual jury instructions."

From this line of cases, the defendant draws an analogy between juvenile brain development and voluntary intoxication and argues that the judge's failure to provide the requested instruction "prevented the jury from considering whether adolescent-brain-development issues interacted with, triggered, or intensified an underlying mental disease or defect"

(quotations and alteration omitted). See Commonwealth v. Dunphe, 485 Mass. 871, 886 (2020); Commonwealth v. DiPadova, 460 Mass. 424, 439 (2011) (Appendix).

There are two reasons why this argument fails. First, this is not an apt comparison. In Fernandes, 487 Mass. at 782-783, we distinguished juvenile brain development from voluntary intoxication based on the "'legislatively resolved issue' of whether anyone the defendant's age could formulate the necessary intent for murder." Second, the judge's ruling did not deprive the jury of the ability to fairly consider the defendant's age. Dudley testified that the defendant's "young age" had an impact on his ability "to really fully appreciate the illness that he was suffering from," as well as his ability to manage multiple trauma-related symptoms such as anxiety and agitation. Kinscherff, on cross-examination, testified to the differences between an adolescent brain and an adult brain, which include increased impulsivity and risk taking in the former. Finally, in closing, defense counsel argued:

> "How could a [fourteen year old] boy cope with an acute psychotic episode? You heard about the juvenile brain and how the juvenile brain has an effect on teenagers that makes them very different from adults. They have difficulty with making decisions under stress, with controlling their impulses. And [the defendant] was no ordinary [fourteen year old] boy. He was a [fourteen year old] boy with the burden of this progressive illness."

See Odgren, 483 Mass. at 48-49 (noting that jury were "made sufficiently aware of the impact that the defendant's age and various diagnoses might have on his ability to form the requisite intent to kill").

g. The sufficiency of the evidence of aggravated rape and armed robbery. At trial, the defendant moved for a required finding of not guilty as to each of the offenses, both at the close of the Commonwealth's case and at the close of all evidence. The defendant's motions were denied. On appeal, with respect to the sufficiency of the evidence of aggravated rape and armed robbery, the defendant raises the question whether the victim was alive at the time of the aggravated rape and armed robbery. In essence, he contends that the evidence suggested that he committed the actions underlying these offenses while hiding the victim's deceased body in the woods. The Commonwealth counters that the evidence was sufficient to establish that the defendant raped the victim and stole her underwear inside the second-floor bathroom while she was still alive.

"In reviewing the denial of a motion for a required finding of not guilty, this court must determine whether the evidence, including inferences that are not too remote according to the usual course of events, read in the light most favorable to the Commonwealth, was sufficient to satisfy a rational trier of fact

of each element of the crime beyond a reasonable doubt" (citation and alteration omitted). Commonwealth v. Sanchez, 476 Mass. 725, 730 (2017). A jury cannot convict if the question of guilt is left to conjecture or surmise, without an adequate basis of fact. Commonwealth v. Shakespeare, 493 Mass. 67, 81 (2023). At the same time, the Commonwealth is not required to exclude every reasonable hypothesis of innocence if the trial record, viewed in its entirety, supports a conclusion of guilt beyond a reasonable doubt. Commonwealth v. Platt, 440 Mass. 396, 401 (2003). We address the defendant's challenge to the aggravated rape conviction and then turn to the armed robbery conviction.

The crime of aggravated rape requires the Commonwealth to prove, among other elements, that the defendant had sexual intercourse with the victim and compelled the victim to submit by force and against her will. See Commonwealth v. Paige, 488 Mass. 677, 680 (2021); G. L. c. 265, § 22 (a). Here, the judge further instructed that the Commonwealth must prove that "[the victim] was alive at the time of penetration or, in the alternative, . . . that the killing and the alleged aggravated rape were part of one continuous event."

At best, the defendant contends, the evidence established that he committed a sexual assault without penetration in the bathroom or ejaculated on top of the victim's deceased body in

the woods. To explain highly inculpatory evidence that his sperm cells were found on vaginal swabs, he argues that this evidence is "hardly proof" of penetration given the limited number of cells found in the sample and that "sperm cells can be accidentally transferred easily." He also dismisses the significance of a student's observation of the defendant's exposed buttocks in the bathroom by pointing out that she did not observe a sexual assault or "notice anything unusual."

Considered in the light most favorable to the Commonwealth, the evidence of aggravated rape was sufficient. The supporting evidence included the presence of two sperm cells inside the victim's vaginal canal. The cells, which were a partial DNA match to the defendant, were discovered from a portion of one of the vaginal swabs treated with several chemicals to extract sperm cells. Contrary to the defendant's theory of accidental transfer, the medical examiner explained that "vaginal swab[s] are actually swabs that are inserted into the vagina, so again that internal structure that we talked about, versus the external genitalia swabs which are conducted on the outside of the genitalia." In addition, the jury could reasonably infer that the student interrupted the defendant in the act of raping the victim even though the student just caught a glimpse of the crime.

To prove armed robbery, the Commonwealth must establish that "the defendant [took] money or other property from the victim with the intent to steal it, while armed with a dangerous weapon and by applying actual force to the victim or putting the victim in fear through the use of threatening words or gestures." Commonwealth v. Benitez, 464 Mass. 686, 694 n.12 (2013). Proof that the defendant took property "from" the victim requires that the item taken was "within the presence of the victim" -- i.e., within her "area of control." Commonwealth v. Jones, 362 Mass. 83, 87 (1972). It is not a robbery if "the intent to steal is no more than an afterthought to a previous assault." Commonwealth v. Moran, 387 Mass. 644, 646 (1982). See Commonwealth v. Stewart, 460 Mass. 817, 821 (2011) (taking must be with intent to permanently deprive person of her property).

Here, it was undisputed that the police discovered the victim's body unclothed from the waist down and that a Topsfield police officer found a pair of woman's underwear in the defendant's backpack. Nonetheless, the defendant contends that the Commonwealth failed to prove that he specifically took the victim's underwear "from her person" in the bathroom. The underwear, he argues, could have been taken in the woods where the police found other articles of clothing, including the victim's black pants.

The evidence, and the reasonable inferences drawn therefrom, was sufficient to prove that the defendant removed the victim's underwear in the bathroom and took this article of clothing with an intent to permanently deprive. The defendant emerged from the bathroom carrying a bundle of clothing with only the victim's black pants visible. A chemist found bloodstains on the underwear, but no seminal fluid or sperm cells. The absence of seminal fluid or sperm cells, she opined, indicated that the underwear had been removed prior to the sexual assault. After the rape and murder, the defendant placed the victim's underwear in his backpack, along with the victim's wallet and "survival gear," and fled the scene. It was reasonable to infer that the defendant removed the victim's underwear, along with her pants, prior to the rape, and that he carried these articles of clothing from the bathroom to the woods. The evidence also supports the inference that the defendant intended to permanently deprive the victim of her property because, unlike other articles of her clothing, he kept her underwear.

h. The denial of the defendant's motion to suppress. The defendant moved to suppress physical evidence, including the contents of the drawstring backpack seized by Topsfield police officers, arguing that the evidence was obtained in violation of his rights under the Fourth Amendment to the United States

Constitution and art. 14 of the Massachusetts Declaration of Rights. Starting in January 2015, the trial judge held a four-day evidentiary hearing on the defendant's motion to suppress. At the conclusion, he denied the defendant's motion under the inevitable discovery exception to the exclusionary rule. In reviewing the denial of a motion to suppress, we accept the motion judge's findings of fact absent clear error and conduct an independent review of the judge's ultimate findings and conclusions of law. Commonwealth v. Jones-Pannell, 472 Mass. 429, 431 (2015).

The judge's findings of fact bearing on inevitable discovery, supplemented with undisputed evidence provided by credited witnesses, are as follows. See Commonwealth v. Tavares, 482 Mass. 694, 699 (2019). Officer Hovey responded to a report of a person walking on Route 1 in Topsfield, at around 12:28 A.M. This section of highway is unsafe for pedestrians, especially at night. It is police department policy to offer pedestrians encountered on Route 1 transportation to a safer location. Hovey parked in the middle of the road and approached the defendant, who had stopped walking. The defendant provided odd responses to Hovey's questions, indicating that he was "coming from . . . Tennessee," and "going . . . no where." He also told Hovey that he did not have identification on him.

During this exchange, the defendant continued to look straight ahead as if Hovey was not there.

Officer DeBernardo, who joined Hovey, asked the defendant what was in his backpack. The defendant responded, "survival gear." DeBernardo then seized the backpack. He escorted the defendant to the other side of the road, in between the police cruisers, to get out of traffic. Hovey asked the defendant to empty his pockets, from which the defendant produced the victim's insurance card, credit cards, and driver's license.

Hovey asked the defendant his name. He responded, "Philip Chism." Hovey immediately recognized the defendant's name as that of the missing Danvers teenager. The officer went into "parent mode" and was "elated . . . to bring [the fourteen year old] missing boy back to his parents." After contacting Danvers police, Hovey transported the defendant to the Topsfield police station pending further arrangements to get the defendant home. At the police station, Hovey and DeBernardo searched the defendant's backpack and discovered, among other items, the victim's wallet and underwear, along with a bloodstained box cutter knife.

The Topsfield police department had a written policy for handling juveniles in custody, including runaways in protective custody. Under the policy, runaways that are held at the police station, while awaiting processing and release to a parent or

guardian, are subject to inventory searches of outer clothing, backpacks, or other containers brought into the police station as personal property.

The judge determined that the community caretaking function permitted the officers to detain the defendant on the busy road at nighttime, question him, and escort him across the street to a safe location. There was no reason, he determined, to reach the more complicated issue whether the community caretaking function justified the pat frisk of the defendant or the seizure of his backpack. Instead, the judge concluded that incriminating evidence uncovered from the backpack would have been inevitably discovered pursuant to the Topsfield police station's inventory policy. See Commonwealth v. Hernandez, 473 Mass. 379, 386 (2015), quoting from Commonwealth v. Sbordone, 424 Mass. 802, 810 (1997) ("evidence may be admissible as long as the Commonwealth can demonstrate that discovery of the evidence by lawful means was certain as a practical matter, the officers did not act in bad faith to accelerate the discovery of evidence, and the particular constitutional violation is not so severe as to require suppression" [quotation omitted]). See also Commonwealth v. O'Connor, 406 Mass. 112, 119 (1989). The judge found that "[t]here [was] no set of circumstances where, after the Topsfield police approached the defendant on Old Route 1 at approximately 12:30 [A.M.], they would have failed to ask

for his name and discovered he was the missing youth from Danvers."

The defendant challenges the judge's finding that, absent the roadside search of the defendant, the officers would have discovered the defendant's name and taken him into protective custody. He argues that the judge "ignor[ed]" the fact that the defendant revealed his identity only in response to Hovey's "coercive and unconstitutional display of authority." Because the defendant previously told the officers that he did not have identification and did not volunteer his name during the roadside encounter, he contends, it was not certain as a practical matter that he would have revealed his name.

We conclude that the evidence deemed credible supported the judge's determination that, absent the discovery of the victim's credit cards, it was certain as a practical matter that the Topsfield officers would have learned the defendant's name and taken him into protective custody as a runaway. Hovey, in his initial series of questions, sought to identify the person located on the busy roadway by requesting identification. The defendant replied that he was not in possession of identification. Shortly thereafter, Hovey asked the defendant his name, and the defendant truthfully answered the question.

The judge's finding that the police would have asked the defendant his name is supported by the primary purpose of the

encounter. The evidence supports the judge's determination that the officers "were engaged in community caretaking throughout their interaction with the defendant on Old Route 1." See Commonwealth v. Knowles, 451 Mass. 91, 94-95 (2008) (community caretaking function permits officers to "stop individuals and inquire about their well-being, even if there are no grounds to suspect that criminal activity is afoot"). As the Commonwealth notes, "the defendant's strange answers that he was going 'nowhere'; had come from 'Tennessee'; did not have identification; and had no address would leave officers at a loss as to how to assist him" without determining his identity. See Commonwealth v. Armstrong, 492 Mass. 341, 349-350 (2023) (under community caretaking function, officers were permitted to temporarily detain and question disturbed motel trespasser for twenty minutes to ascertain his identity and ensure he was not wanted or missing).

i. The prosecutor's closing argument. The defendant contends that actions and remarks from the prosecutor exceeded the bounds of proper closing argument by improperly appealing to the jury's sympathy. Specifically, he argues that the prosecutor (1) improperly displayed a photograph of the victim, taken while she was still alive, to the jury for a lengthy time period; and (2) improperly urged the jury to dwell on disturbing

crime scene photographs.[13] Given that the defendant objected to the prosecutor's use of the victim's photograph, we review for prejudicial error. See Commonwealth v. Robinson, 493 Mass. 775, 788 (2024). The second, unobjected-to claim is reviewed under our default standard for substantial likelihood of a miscarriage of justice. Commonwealth v. Mello, 420 Mass. 375, 379-380 (1995). We conclude that neither the prosecutor's actions nor her statements require a new trial.

"The rules governing prosecutors' closing arguments are clear in principle." Commonwealth v. Kozec, 399 Mass. 514, 516 (1987). A prosecutor is entitled to forcefully argue for conviction based on the evidence and the reasonable inferences drawn from that evidence. Id. "Within this framework, . . . a prosecutor may attempt to fit all the pieces of evidence together by suggesting what conclusions the jury should draw from the evidence" (quotations and citation omitted). Commonwealth v. Rutherford, 476 Mass. 639, 643 (2017). It is also "well settled that a prosecutor may not appeal to the jury's sympathy." Commonwealth v. Lora, 494 Mass. 235, 259 (2024), quoting Commonwealth v. Doughty, 491 Mass. 788, 797

[13] The defendant contends also that the prosecutor misstated the evidence by arguing that the defendant raped and robbed the victim in the bathroom. Having found sufficient evidence to support the Commonwealth's argument, see supra, the claim that the prosecutor misstated the evidence is unavailing.

(2023). See Commonwealth v. Bois, 476 Mass. 15, 34 (2016) ("Prosecutorial appeals to sympathy . . . obscure the clarity with which the jury would look at the evidence and encourage the jury to find guilt even if the evidence does not reach the level of proof beyond a reasonable doubt" [quotation and citation omitted]).

We first address the defendant's claim that the prosecutor improperly displayed a photograph for one minute and forty seconds. The photograph, which depicts the victim smiling in a pink sweater, was previously admitted in evidence. In that portion of her thirty-six minute closing argument, the prosecutor addressed the defendant's claim that command hallucinations rendered him unable to conform his conduct to the requirements of law.[14] Specifically, the prosecutor stated:

> "I have asked you to consider the image of [the victim] in the woods and I will ask you in your deliberations to examine those autopsy photographs for what they tell you about the injuries in this case. But then I would ask you to return to this image of [the victim]. This was [the victim]. . . . This is the [victim] who was alone in that bathroom and in those woods with [the defendant], not a mentally ill child, not someone powerless to voices in his head. The only person powerless in the bathroom, in those woods is [the victim], because she was alone with the person who robbed her of her underwear, who raped her, who raped her again with a tree branch, and who murdered her

[14] Defense counsel had argued: "[W]hen [the defendant] followed [the victim] into that bathroom he was not himself, he was not the kind, smart [fourteen year old] boy. He was totally and absolutely responding to the terrible command hallucinations that were in his head."

> with deliberate premeditation and with extreme atrocity and cruelty."

Defense counsel objected to the "length of the display," not to the content of the argument, and sought a mistrial rather than a possible curative instruction offered by the judge. While expressing concern about the duration of the display, the judge denied the motion for a mistrial.

Viewing the prosecutor's display of the photograph in context of the evidence before the jury and the judge's instructions, we discern no prejudicial error. See Commonwealth v. Coren, 437 Mass. 723, 730-731 (2002). A prosecutor may "tell the jury something of the person whose life had been lost in order to humanize the proceedings, but must refrain, when personal characteristics are not relevant to any material issue, . . . from so emphasizing those characteristics that it risks undermining the rationality and thus the integrity of the jury's verdict" (quotations and citation omitted). Fernandes, 487 Mass. at 791. Displaying a vibrant, joyful photograph of the victim for any length of time, no doubt, evokes sympathy given the horrific nature of the crimes. Nonetheless, the prosecutor's use of a trial exhibit, in these circumstances, did not undermine the rationality of the jury's verdict. See Commonwealth v. Gouse, 461 Mass. 787, 797-798 (2012), reversed on other grounds by Commonwealth v. Guardado, 491 Mass. 666,

689-690, S.C., 493 Mass. 1 (2023), cert. denied, 144 S. Ct. 2683 (2024) (difficult to conceive of prejudice to defendant from alleged prolonged display of victim's photograph during testimony of three witnesses); Commonwealth v. Correia, 65 Mass. App. Ct. 27, 29-30 (2005) (noting that jury will have exhibits, including victim's photograph, for entire length of deliberations).

The prosecutor displayed the photograph to underscore her argument that the victim, as opposed to the defendant, was the truly powerless person in the brutal encounter. See Rutherford, 476 Mass. at 643, 646 (prosecutor may argue forcefully within bounds of zealous advocacy). The argument was material to an issue raised at trial, i.e., the defendant's ability to control the victim prior to inflicting deadly force, not a gratuitous appeal to sympathy. Cf. Commonwealth v. Cheng Sun, 490 Mass. 196, 211-212 (2022) (testimony of victim's son detailing victim's work ethic and close relationship to his son was improper); Commonwealth v. Alemany, 488 Mass. 499, 513 (2021) (improper argument that victim would never walk down aisle with her father on her wedding day had no relevance to defendant's guilt). Furthermore, in context with the trial evidence, it is unlikely that a less-than-two-minute display of the victim's photograph had an inflammatory effect on the jury given the shocking nature of the crime. See Bois, 476 Mass. at 35.

Finally, the judge mitigated potential prejudice by repeatedly instructing the jury that verdicts must be based on the evidence, not feelings of sympathy, and that closing arguments are not evidence.

Next, the defendant asserts that the prosecutor engaged in misconduct by urging the jury to focus on gruesome crime scene photographs. The prosecutor argued:

> "[T]he only still image that matters in this case is the image of [the victim] in the woods, the image that the defendant painted of [the victim] stripped, battered, brutalized and violated, framed by a fallen fence, the defendant's school bag discarded nearby with his I.D. like some kind of terrible signature. That is the only still image in this case that tells you what was happening in the mind of [the defendant] on October 22nd, 2013. And that's the image that Doctor Dudley, despite his thorough preparation, never considered."

There was no error because the prosecutor was permitted to refer to crime scene photographs, admitted as the judge instructed, to demonstrate "the nature and extent of [the victim's] injuries, as it relate[d] to the state of mind of the defendant." See Commonwealth v. Camacho, 472 Mass. 587, 607 (2015) (prosecutor entitled to focus jury on disturbing facts where relevant to issue raised in trial).

j. The denial of the defendant's motion for a change of venue. To address the impact of pretrial publicity, the defendant moved for a change of venue "to a county outside the boundaries of the Boston media market." See Mass. R. Crim.

P. 37 (b) (1), 378 Mass. 914 (1979). After a hearing, the judge denied the motion, concluding that the defendant had failed to establish a pretrial presumption of prejudice requiring a change of venue. He reserved judgment on the issue of actual prejudice, and subsequently denied a renewed motion for a change of venue filed during empanelment. On appeal, the defendant argues that these rulings deprived him of his right to trial before an impartial jury.

"A trial judge should exercise his or her power to change the venue of a jury trial with great caution and only after a solid foundation of fact has first been established" (quotation, citation, and alteration omitted). Commonwealth v. Clark, 432 Mass. 1, 6 (2000). The defendant is required to show either presumptive prejudice or actual prejudice. See Commonwealth v. Smith, 492 Mass. 604, 609 (2023); Commonwealth v. Toolan, 460 Mass. 452, 462 (2011), S.C., 490 Mass. 698 (2022). This court reviews decisions on motions for change of venue for abuse of discretion. Hoose, 467 Mass. at 405.

Presumptive prejudice exists "in the extreme case where a trial atmosphere is so utterly corrupted by media coverage that a defendant can obtain a fair and impartial jury only through a change in venue" (quotations and citation omitted). Commonwealth v. Entwistle, 463 Mass. 205, 221 (2012), cert. denied, 568 U.S. 1129 (2013). To determine presumptive

prejudice, we weigh two factors set forth in Commonwealth v. Morales, 440 Mass. 536, 540-542 (2003). See Commonwealth v. Bateman, 492 Mass. 404, 430 (2023). First, we examine "whether the nature of the pretrial publicity was both extensive and sensational" (quotation and citation omitted). Commonwealth v. Hart, 493 Mass. 130, 141-142 (2023). Media coverage is "extensive" when it is "all-consuming and constant" (citation omitted). Id. at 142. Pretrial publicity is not likely to be extensive, in contrast, when it "becomes more factual and the frequency of coverage decreases in the time period between the crimes and jury empanelment." Hoose, 467 Mass. at 406. And publicity "is sensational when it contains emotionally charged material that is gratuitous or inflammatory, rather than a factual recounting of the case." Id. at 407. Second, we examine "whether the judge was in fact able to empanel jurors who appear impartial." Id. at 406.

Our review of the record supports the judge's finding that the extensive media coverage, while sometimes graphic due to the nature of the crimes, had been "predominately factual in nature and [had] not risen to the level of [being] emotionally charged, gratuitous, or inflammatory, even with the coverage [of] the [d]efendant's alleged [suppressed] confession." See Morales, 440 Mass. at 540 (media references to defendant's confession, criminal record, victim's twenty-one year service as police

officer, victim's popularity in community, and memorials in victim's honor were "significantly short of the type of emotionally charged, inflammatory, sensationalistic coverage needed to support a presumption of prejudice" [citation omitted]). See also United States v. Angiulo, 897 F.2d 1169, 1181 (1st Cir.), cert. denied, 498 U.S. 845 (1990) (no presumption of prejudice despite frequent characterization of defendant as mafia crime boss).

Additionally, the defendant failed to establish that it was difficult to empanel an impartial jury. "Where a high percentage of the venire admits to a disqualifying prejudice, a court may properly question the remaining jurors' avowals of impartiality and choose to presume prejudice" (citation omitted). Morales, 440 Mass. at 541. The judge individually questioned 140 potential jurors, and less than ten percent of the venire was excused, either in whole or in part, due to exposure to prejudicial publicity. See Hart, 493 Mass. at 142 (no presumption of prejudice where less than twenty percent of potential jurors were excused); Commonwealth v. Angiulo, 415 Mass. 502, 515 (1993) (no presumption of prejudice where forty-two percent of potential jurors excused).

The defendant also failed to establish that he was actually prejudiced by pretrial publicity. See Hoose, 467 Mass. at 408-409. In a case involving extensive pretrial publicity, "the

voir dire procedures utilized by the judge are particularly important." Id. at 408. After review of the trial transcript, we conclude that the judge conducted careful and thorough voir dire to address the potential risks of pretrial publicity. Over the course of the nine-day empanelment, potential jurors were cleared for hardship and knowledge of any witnesses, and were required to fill out a detailed fifteen-page questionnaire. The questionnaire provided a summary of the facts of the case and required each potential juror to disclose the following: (1) any "knowledge of this case gained from any source"; (2) the source of such knowledge (with check boxes for television, radio, newspapers, magazine, Internet, social media, family or friends, overheard discussion, and other); (3) the details of the case the juror was able to recall; (4) any awareness of a "specific impact this criminal allegation has had on [the juror's] community"; (5) his or her primary source of news; (6) how often he or she read print or online newspapers (including nine local examples); (7) the frequency of the juror's exposure to news from radio, television, or social media platforms; and (8) the juror's familiarity with the case prior to the day of empanelment. With this information in hand, the judge asked follow-up questions during individual voir dire to probe the potential jurors' exposure to pretrial publicity. See Morales,

440 Mass. at 542 (right to fair and impartial jury does not include right to jurors with no prior knowledge of case).

Of the twelve jurors who returned a verdict, nine reported not knowing any details beyond the facts set forth in the court's summary. One recalled that the "defendant went to the movies or something afterwards, . . . and then was found later on Route 1, I think, in Topsfield." Another seated juror also recalled "Mr. Chism was picked up on Route 1." And the twelfth juror heard a radio report that the judge was "going to make a decision on whether the defendant was able to stand trial." He added, "I don't know what the decision was, but that's what I heard just briefly. That's the only thing I've heard about the case." See Smith, 492 Mass. at 609-610. Defense counsel's failure to challenge any of the seated jurors for cause on grounds of exposure to pretrial publicity "further belies any claim of juror partiality." Morales, 440 Mass. at 543.[15]

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[15] The court conducted a competency evaluation of the defendant after the third day of empanelment. In opposition, the prosecutor expressed her belief that the defendant was "feigning" to delay trial, was "manipulating" the court, and was "concerned that we are all going to be held hostage to his behavior for the next four to six weeks." The judge found the defendant competent, and when empanelment resumed, the defense renewed its motion for a change of venue or, in the alternative, dismissal of the venire. Defense counsel pointed to widespread media coverage of the prosecutor's statements. The judge denied the motion without prejudice, indicating that "everything that's happened since impanelment stopped is important" and that he would address any potential exposure to this information in voir

Where the defendant failed to establish a solid foundation of fact establishing presumptive prejudice or actual prejudice, the judge did not abuse his discretion in denying the defendant's motions for a change of venue.

k. The proportionality of the aggravated rape and armed robbery sentences under art. 26. At the time of sentencing, the judge, defendant, and Commonwealth assumed, based on Diatchenko v. District Attorney for the Suffolk Dist., 466 Mass. 655, 661-667 (2013), S.C., 471 Mass. 12 (2015), that the defendant was entitled to a so-called Miller sentencing hearing to "consider the defendant's age, the possibility of rehabilitation, and the brain development of adolescents." See Miller, 567 U.S. at 477-478. After such a hearing, and the application of then-existing parole eligibility statutes, the judge sentenced the defendant to mandatory life imprisonment with the possibility of parole in twenty-five years for his conviction of murder in the first degree. He sentenced the defendant on the aggravated rape and armed robbery convictions to imprisonment for from forty years to forty years and one day, to run concurrently with the life sentence for murder in the first degree -- a sentence, the judge

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dire. Relying on press coverage of the competency hearing, the defendant argues on appeal that the venire was likely influenced by the prosecutor's "inflammatory comments." The defendant, however, has not brought to our attention a single instance where a potential juror reported knowledge of the prosecutor's alleged inflammatory comments.

indicated, that did not "utilize the horrific rape and robbery of [the victim] to punish the defendant for this unspeakable murder more than the law allows." Under the aggregate sentence, the defendant is parole eligible at age fifty-four.

The defendant contends that the aggravated rape and armed robbery sentences must be vacated, and the case remanded for resentencing, as his current sentence violates the proportionality requirement of art. 26. This contention raises two issues: first, whether the defendant was entitled to a Miller hearing to begin with; and second, if so, whether the judge's consideration of the Miller factors supported his sentence.[16]

A juvenile is entitled to a Miller hearing if a sentence is presumptively disproportionate under art. 26. See Commonwealth

[16] The defendant further argues that the aggregate sentence with parole eligibility at forty years constitutes the functional equivalent of life without the possibility of parole in violation of art. 26. See Commonwealth v. Brown, 466 Mass. 676, 691 n.11 (2013), S.C., 474 Mass. 576 (2016). While we decline to draw a bright-line rule for what the functional equivalent of life without the possibility of parole is in terms of years, we conclude that the defendant's aggregate sentence allowing parole eligibility at age fifty-four does not reach that threshold. See Commonwealth v. LaPlante, 482 Mass. 399, 406-407 (2019) (upholding forty-five year aggregate sentence for juvenile convicted of three counts of murder in first degree). See also Diatchenko, 471 Mass. at 29-30 ("The art. 26 right of a juvenile homicide offender in relation to parole is limited. To repeat: it is not a guarantee of eventual release, but an entitlement to a meaningful opportunity for such release based on demonstrated maturity and rehabilitation").

v. Concepcion, 487 Mass. 77, 89 n.19, cert. denied, 142 S. Ct. 408 (2021). See also Cepulonis v. Commonwealth, 384 Mass. 495, 497 (1981) ("To reach the level of cruel and unusual, the punishment must be so disproportionate to the crime that it shocks the conscience and offends fundamental notions of dignity" [quotation and citation omitted]). We have yet to decide the issue presented in this appeal: whether a sentence imposed on a juvenile convicted of both homicide and nonhomicide offenses against the same victim and sentenced in the aggregate to parole eligibility exceeding that allowed for a conviction of murder in the first degree is presumptively disproportionate.

Our analysis starts with the art. 26 proportionality principles articulated in Commonwealth v. Perez, 477 Mass. 677, 678-679 (2017) (Perez I), S.C., 480 Mass. 562 (2018) (Perez II), a case involving the sentencing of a juvenile, convicted of violent nonhomicide crimes, to imprisonment for over thirty years. To assess proportionality, we examined the disparity "between the sentence imposed on the juvenile and punishments prescribed for the commission of more serious crimes in the Commonwealth." Id. at 685, quoting Cepulonis, 384 Mass. at 498. The lengthy sentence was presumptively disproportionate, we concluded, because "the aggregate sentence imposed on this juvenile defendant, albeit for serious crimes, is more severe -- at least as to parole eligibility -- than a sentence that could

be imposed on a juvenile convicted of murder." Perez I, supra at 685-686. "That presumption is conclusive, absent a hearing to consider whether extraordinary circumstances warrant a sentence treating the juvenile defendant more harshly for parole purposes than a juvenile convicted of murder." Id. at 686. See Commonwealth v. Lutskov, 480 Mass. 575, 583 (2018) (youthful offender's mandatory twenty-year minimum sentence for armed home invasion with resulting parole eligibility exceeding that applicable for murder was presumptively disproportionate under art. 26).

The same reasoning applies to the defendant's case. We recognize that the defendant, unlike the juvenile offender in Perez I, is "a juvenile convicted of murder." Notwithstanding that distinction, the same proportionality benchmark of parole eligibility for murder in the first degree applies to nonhomicide offenses in the same homicide case and involving the same victim. To hold otherwise risks diminishing State constitutional protections afforded to juvenile offenders convicted of murder by allowing lengthy sentencing imposed on the nonhomicide portion of a sentence to dictate parole eligibility. See Commonwealth v. Wiggins, 477 Mass. 732, 747-748 (2017) (juvenile defendant entitled to resentencing on home invasion and robbery convictions in light of Diatchenko adjustment to sentence on murder conviction).

The Commonwealth contends that Commonwealth v. Sharma, 488 Mass. 85 (2021), compels a different result. Sharma, however, is distinguishable because the sentences imposed for nonhomicide offenses were not presumptively disproportionate. There, a seventeen year old defendant pleaded guilty to murder in the second degree for the death of one victim, and two counts of armed assault with intent to murder for shooting two of the victim's friends. Id. at 86. He was sentenced to life in prison with the possibility of parole for the murder conviction and received two concurrent sentences of from seven to ten years for the assaults to run consecutive to the life sentence. Id. The court found the consecutive sentences not presumptively disproportionate under art. 26. Id. at 92-93. In weighing proportionality, the court determined that the additional punishment beyond the murder conviction resulted from the defendant's convictions for the armed assault with intent to murder two others. Id. See Commonwealth v. LaPlante, 482 Mass. 399, 403 (2019) (declining to set ceiling or floor for aggregate parole eligibility for juvenile offender convicted of murdering multiple victims). Moreover, the sentences of from seven to ten years imposed for the nonhomicide offenses did not themselves, unlike in the instant case, exceed the benchmark of parole eligibility for a juvenile convicted of murder in the first degree.

Having determined that the sentences imposed on the nonhomicide offenses were presumptively disproportionate, the next question to address is whether the judge abused his discretion in weighing the Miller factors. The judge ordered a presentence investigation. See G. L. c. 119, § 58; Mass. R. Crim. P. 28 (d), 378 Mass. 898 (1979). The report resulting from that investigation addressed the defendant's familial, educational, social, physical, and mental health histories. At the sentencing hearing, the defendant called no witnesses, but admitted six exhibits, including the defendant's DYS records and the results of a psychological examination conducted during the defendants' commitment pursuant to G. L. c. 123, § 18 (a). Furthermore, the judge relied on the evidence presented at trial on the topics covered in the presentence report as well as expert testimony concerning the defendant's mental health. See Perez II, 480 Mass. at 564 n.3 (discussing judge's ability to rely on trial evidence). We view the trial judge's posttrial findings of fact with "special deference." Id.

While "merely stating that [the judge] considered the Miller factors, without more, would constitute a cursory analysis that is incompatible with art. 26." Deal v. Massachusetts Parole Bd., 484 Mass. 457, 462 (2020), there is no indication that the judge engaged in such a cursory analysis here. In addition to traditional sentencing considerations, the

judge considered the nature and circumstances of the crimes; the defendant's age, family circumstances, and mental health; the brain development of adolescents; and the possibility of rehabilitation. He observed that the defendant "did not start life on third base"; his absentee father was "abusive, harsh, unfaithful, and unpredictable," and his mother had "mixed success" in providing emotional and financial support. The crimes, however, did not reflect the immaturity or impulsivity of youth. The defendant "carefully and deliberately prepared to kill his math teacher."

Relying on the sentencing memorandum and the judge's statements during the hearing, we conclude that the defendant was afforded all the protections that a juvenile sentenced after Perez I would have received. Perez I, 477 Mass. at 686. The defendant's allegations of error concern the weight assigned to the Miller factors, a matter within the judge's discretion. See Lutskov, 480 Mass. at 582.

The proportionality requirements of art. 26 are meant to ensure that a defendant's punishment is not "so disproportionate to the crime that it 'shocks the conscience.'" Diatchenko, 466 Mass. at 669, quoting Cepulonis, 384 Mass. at 497. The nonhomicide offenses were distinct heinous acts that inflicted, as the Commonwealth argues, "suffering and humiliation in their

own right." A forty-year prison sentence does not shock the conscience.

1. Relief under G. L. c. 278, § 33E. The defendant asks that we exercise our extraordinary power pursuant to G. L. c. 278, § 33E, and either order a new trial or reduce the murder verdict. After carefully reviewing the record, we conclude that none of the asserted errors, standing alone or cumulatively, requires a new trial, and that there is no other basis on which to disturb the jury's verdict.

Judgments affirmed.