

MASSACHUSETTS SUPREME JUDICIAL COURT

Commonwealth v. Senior

433 Mass. 453 (2001) · Decided March 13, 2001

SUMMARY

The Massachusetts Supreme Judicial Court affirmed Robert B. Senior’s conviction for vehicular homicide. The court held that hospital personnel who performed a blood alcohol test at defense counsel’s request were not agents of the defense team, that retrograde extrapolation evidence was sufficiently reliable for admission, and that the defendant’s failure to answer one question after waiving Miranda rights did not invoke his right to remain silent.

CASE DETAILS

COURT	Massachusetts Supreme Judicial Court
WRITING FOR THE COURT	Ireland, J.
JURISDICTION	Massachusetts
DECIDED	March 13, 2001
DISPOSITION	affirmed
PROCEDURAL POSTURE	The defendant was convicted of vehicular homicide in the Superior Court and appealed directly to the Massachusetts Supreme Judicial Court. He challenged the admission of hospital blood-alcohol-test results, the admission of retrograde-extrapolation expert testimony, the denial of a motion in limine, and prosecutorial comments concerning his post-Miranda silence.
STANDARD OF REVIEW	The court reviewed the admission of retrograde-extrapolation evidence for abuse of discretion, accepted the motion judge's subsidiary factual findings absent clear error, afforded substantial deference to ultimate findings and legal conclusions, and independently reviewed the application of constitutional principles to the facts found.
PRECEDENTIAL VALUE	Published precedential opinion of the Massachusetts Supreme Judicial Court
PARTIES	Robert B. Senior v. Commonwealth

TOPICS

- expert testimony
- daubert standard
- miranda rights
- evidence
- appellate procedure

PRACTICE AREAS

criminal law

criminal procedure

evidence

constitutional law

appellate procedure

QUESTIONS PRESENTED

1. Whether the Commonwealth improperly obtained and introduced the defendant's hospital blood-alcohol test results because the hospital personnel were agents of the defendant or his attorney, or because the records were protected by privilege or constitutional rights concerning preparation of the defense.
2. Whether retrograde extrapolation evidence estimating the defendant's blood-alcohol level at the time of the collision satisfied the reliability requirements of Daubert and Commonwealth v. Lanigan.
3. Whether the defendant's failure to answer one police question after receiving Miranda warnings constituted an invocation of his right to remain silent, making the evidence and the prosecutor's comment impermissible.

HOLDINGS

1. Hospital personnel were not agents of the defendant or his attorney because the record did not show their consent to act on the defense's behalf and subject to its control. The attorney-client privilege and the grand-jury-subpoena protection for defense agents therefore did not apply, and the Commonwealth's subpoena and use of the records did not warrant dismissal of the indictment.
2. Retrograde extrapolation evidence was sufficiently reliable and was properly admitted. General acceptance is relevant but not essential; the controlling inquiry is the reliability of the underlying scientific theory or process, which may be shown through testing, peer review, publication, general acceptance, or other evidence of validity.
3. The defendant did not invoke his right to remain silent. After knowingly and voluntarily waiving his Miranda rights and answering questions, his failure to answer one particular question, while continuing to cooperate and answer other questions, was not an affirmative indication that he was invoking the right. The evidence and prosecutor's comment were therefore permissible.

KEY QUOTATIONS

"The ultimate test ... is the reliability of the theory or process underlying the expert's testimony." (458-459)

"a defendant has not only the right to remain silent from the beginning but also a continuing right to cut off, at any time, any questioning that does take place." (463)

FACTUAL BACKGROUND

After consuming four to six beers over approximately two hours, Robert B. Senior drove faster than the speed limit and collided with a stalled vehicle, killing its driver. Police observed signs of intoxication, administered Miranda warnings, and questioned Senior; he answered most questions but did not respond when asked where he had been drinking. Later that night, at his attorney's request, hospital personnel performed a blood-alcohol test showing a level of .091, and the Commonwealth's expert used retrograde extrapolation to estimate a level between .099 and .148 at the time of the collision.

PROCEDURAL HISTORY

After the defendant's conviction and sentence of three to five years in prison, he filed a timely appeal. The Supreme Judicial Court granted direct appellate review. The court affirmed the judgment of conviction, rejecting each asserted error. A single justice of the Appeals Court had released the defendant and stayed the sentence pending appeal; the Commonwealth's challenge to that order was denied by a single justice of the Supreme Judicial Court.

DISPOSITION

affirmed

CASES CITED

- Commonwealth v. Rosenberg, 410 Mass. 347, 354 (1991)
- Kirkpatrick v. Boston Mutual Life Insurance Co., 393 Mass. 640, 645 (1985)
- Matter of a Grand Jury Investigation, 407 Mass. 916, 918-919 (1990)
- Commonwealth v. Dube, 413 Mass. 570, 572 n.3 (1992)
- Purcell v. District Attorney for the Suffolk District, 424 Mass. 109, 115 (1997)
- Matter of a John Doe Grand Jury Investigation, 408 Mass. 480, 482 (1990)
- Commonwealth v. Penta, 423 Mass. 546, 548-550 (1996)
- Commonwealth v. Souza, 397 Mass. 236, 239-243 (1986)
- Commonwealth v. Cavanaugh, 371 Mass. 46, 50-57 (1976)
- Washington v. Texas, 388 U.S. 14, 17-23 (1967)
- Schwartz v. Goldstein, 400 Mass. 152, 153 (1987)
- Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993)
- Commonwealth v. Lanigan, 419 Mass. 15, 24-26 (1994)
- Frye v. United States, 283 F. 1013 (D.C. Cir. 1923)
- Commonwealth v. Cumin, 409 Mass. 218, 222 (1991)
- Commonwealth v. Sands, 424 Mass. 184, 185-186 & n.1 (1997)
- Canavan's Case, 432 Mass. 304, 310, 312 (2000)
- Douillard v. LMR, Inc., 433 Mass. 162, 163 (2001)
- Ullman v. Overnight Transportation Co., 563 F.2d 152, 152-156 (5th Cir. 1977)
- People v. Latto, 304 Ill. App. 3d 791, 803 (1999)
- Rice v. Merchants National Bank, 213 Ill. App. 3d 790, 797 (1991)
- State v. Jensen, 482 N.W.2d 238, 240 (Minn. Ct. App. 1992)
- People v. MacDonald, 227 A.D.2d 672, 674-675 (N.Y. App. Div. 1996)
- State v. Catoe, 78 N.C. App. 167, 169-170 (1985)
- State v. Fade, 452 N.W.2d 779, 782 (S.D. 1990)
- State v. McDonald, 421 N.W.2d 492, 494 (S.D. 1988)

- Hartman v. State, 2 S.W.3d 490, 494 (Tex. Ct. App. 1999)
- State v. Bradley, 578 P.2d 1267, 1269 (Utah 1978)
- State v. Dumont, 146 Vt. 252, 254-255 (1985)
- State v. Carter, 142 Vt. 588, 591-593 (1983)
- Kempe v. Domestic Corp., 866 F. Supp. 817, 820 (D. Del. 1994)
- McGrew v. Pearlman, 304 Ill. App. 3d 697, 704-706 (1999)
- Reuter v. Korb, 258 Ill. App. 3d 142, 154-157 (1993)
- Commonwealth v. Zugay, 745 A.2d 639, 646 (Pa. Super. Ct. 2000)
- State v. Wolf, 605 N.W.2d 381, 385 (Minn. 2000)
- Commonwealth v. Petrovich, 538 Pa. 369 (1994)
- Commonwealth v. Freeman, 430 Mass. 111, 115 (1999)
- Commonwealth v. Hussey (No. 1), 410 Mass. 664, 671, cert. denied, 502 U.S. 988 (1991)
- Commonwealth v. Harris, 11 Mass. App. Ct. 165, 173 (1981)
- Commonwealth v. Bradshaw, 385 Mass. 244, 265 (1982)
- Commonwealth v. Pennellatore, 392 Mass. 382, 387 (1984)
- Commonwealth v. Roberts, 407 Mass. 731, 734 (1990)
- Commonwealth v. Ewing, 30 Mass. App. Ct. 285, 287 (1991)
- Commonwealth v. James, 427 Mass. 312, 314 (1998)
- United States v. Goldman, 563 F.2d 501, 503 (1st Cir. 1977), cert. denied, 434 U.S. 1067 (1978)
- Vitali v. United States, 383 F.2d 121, 123 (1st Cir. 1967)
- Commonwealth v. Magee, 423 Mass. 381, 384 (1996)
- Commonwealth v. Mello, 420 Mass. 375, 381 n.8 (1995)
- Commonwealth v. MacKenzie, 413 Mass. 498, 513 (1992)
- Commonwealth v. Thompson, 431 Mass. 108, 118 (2000)
- Commonwealth v. Senior, 429 Mass. 1021 (1999)

OPINION

IRELAND, J.

Ireland, J. The defendant, Robert B. Senior, was convicted of vehicular homicide and sentenced to from three to five years in *454prison.¹ We granted his application for direct appellate review. On appeal, the defendant claims the motion judge erred in admitting the results of the defendant's blood alcohol test and that the trial judge erred in allowing the Commonwealth's expert to employ retrograde extrapolation to determine the defendant's blood alcohol content at the time of the collision, in denying his motion in limine, and in permitting the prosecutor to comment on the defendant's post-Miranda silence.

He contends that these errors warrant dismissal of the indictment. We disagree and affirm the conviction. 1. Background. On April 5, 1997, the defendant met Mendis at a restaurant and lounge, where he consumed four to six beers in a two-hour period. At approximately 6:50 p.m., after leaving the restaurant, the defendant drove down Route 44 in excess of the speed limit and crashed into the victim's car, which had apparently stalled on the roadway.

The victim was pronounced dead, of multiple injuries sustained in the collision, at a hospital. Officers Kevin Furtado and Stephen Viella of the Plymouth police department arrived at the scene of the collision, and both spoke with the defendant. Officer Viella testified that the defendant smelled of alcohol, had slurred speech, and was unsteady on his feet.

On this basis, he determined that the defendant was intoxicated. Shortly thereafter, Officer Furtado read the defendant the Miranda warnings, which the defendant indicated he understood. Thereafter, in response to Officer Furtado's questions, the defendant admitted that he had "a couple of beers" and did not see the victim's car before he struck it. When the officer asked him where he had been drinking prior to these events, the defendant did not respond.

This was the only question he failed to answer and, thereafter, he cooperated with Furtado by removing his license and registration and answering other questions relating to the accident. After the defendant performed poorly on three field sobriety tests, Officer Furtado also concluded that the defendant was intoxicated and placed him under arrest.

The defendant was taken to the police station. Later that night, the defendant's attorney² went to the police station and secured the defendant's release. They eventually went to a hospital. Sometime after 11 p.m., hospital personnel performed a blood alcohol test on the defendant, at the attorney's request.

The attorney testified at a pretrial hearing that he had this test conducted because he thought it would be a "useful defense tool," if it reflected the defendant's sobriety. The results of the test indicated that the defendant's blood alcohol level was .091. At trial, the Commonwealth's expert witness, Dr. Guy Vallaro, employing retrograde extrapolation with respect to the results of the blood alcohol content test, estimated that the defendant's blood alcohol level at the time of the collision was between .099 and .148.

Additional facts will be presented with respect to each issue. 2. Admission of the defendant's blood test results. The defendant first claims that the Commonwealth improperly acquired and introduced, both before the grand jury and at trial, the results of his blood alcohol test, conducted by hospital personnel for the sole purpose of defending against the charge of vehicular homicide.

On this basis, the defendant maintains his motion to dismiss the indictment should have been allowed. He sets forth a number of grounds in support of this contention, all of which depend on the hospital personnel qualifying as agents of the defendant and his attorney. These arguments fail

because we conclude that the hospital personnel were neither the defendant's nor the attorney's agents.

The defendant maintains that the hospital personnel became his agents, i.e., members of his defense team, when they drew and tested his blood at his counsel's request, as part of the defense effort to gather potentially exculpatory evidence.

However, there was no such agency relationship shown between the defendant and the hospital personnel. *Commonwealth v. Rosenberg*, 410 Mass. 347, 354 (1991). Nothing in the record indicates that the hospital's employees manifested the requisite consent to act in that capacity. *Kirkpatrick v. Boston Mut. Life Ins. Co.*, 393 Mass. 640, 645 (1985), quoting Restatement *456(Second) of Agency § 1 (1958) (agency relationship "results from the manifestation of consent by one person to another that the other shall act on his behalf and subject to his control").

See *Commonwealth v. Rosenberg*, supra. Moreover, although the defendant and his attorney may have hoped and intended that the hospital's employees would be their agents, the record does not suggest that they ever expressly communicated that expectation to the hospital's employees.³ Thus, the hospital personnel were not acting as the defendant's agents when they conducted the blood alcohol test.

The defendant asserts that the Commonwealth improperly used a grand jury subpoena to obtain the hospital record of the blood test results in violation of S.J.C. Rule 3:08, PF 15, 396 Mass. 1217 (1986), which governed grand jury subpoenas to attorneys.⁴ Under this rule, "[s]ubpoenaing an agent carries the risk that confidential information imparted by the attorney to the agent in order to conduct an effective investigation may be disclosed through the agent....

Turning members of the defense team into government witnesses may undermine a client's trust in, and his willingness to communicate with, his attorney." *Matter of a Grand Jury Investigation*, 407 Mass. 916, 918-919 (1990).

In light of our conclusion that the hospital personnel were not agents of the defense team, the Commonwealth did not violate PF 15 by subpoenaing the results of the test. Additionally, the defendant asserts that, by subpoenaing the test results, the Commonwealth violated "multiple privileges." Because we do not recognize a statutory patient-physician *457testimonial privilege in Massachusetts,⁵ *Commonwealth v. Dube*, 413 Mass. 570, 572 n.3 (1992), the only conceivably applicable privilege is the attorney-client privilege.

The attorney-client privilege extends to all communications made to an attorney "for the purpose of facilitating the rendition of legal services." *Purcell v. District Attorney for the Suffolk Dist.*, 424 Mass. 109, 115 (1997). See *Matter of a John Doe Grand Jury Investigation*, 408 Mass. 480, 482 (1990).

Because the privilege is destroyed when such communications are made in the presence of a non-necessary agent of the attorney or client, *Commonwealth v. Rosenberg*, 410 Mass. at 354 n.10, its application depends on whether the hospital personnel were acting as the defendant's or his attorney's agents.

Because of our conclusion that the hospital employees were not part of the defense team, their records would have been discoverable by the Commonwealth in the same manner as information held by any non-party witness. Additionally, the defendant argues that the Commonwealth's actions violated his State and Federal constitutional rights to prepare a defense.

The Commonwealth's subpoenaing of the records did not, in any sense, interfere with the preparation of the defendant's case. Moreover, while the cases cited by the defendant recognize a constitutional right to prepare a defense, *458because they do not relate to the Commonwealth's merely obtaining access to evidence allegedly prepared for the defense, they are inapposite.

See *Commonwealth v. Penta*, 423 Mass. 546, 548-550 (1996) (rejecting claim that prosecutor had improperly threatened potential witness and thereby prevented defendant from securing witness's presence at trial); *Commonwealth v. Souza*, 397 Mass. 236, 239-243 (1986) (no violation of right to prepare defense, where judge denied continuance pending defendant's appeal from denial of motion for costs of polygraph examination and transcript of prior bench trial); *Commonwealth v. Cavanaugh*, 371 Mass. 46, 50-57 (1976) (denial of continuance effectively deprived defendant of opportunity to prepare defense).

See also *Washington v. Texas*, 388 U.S. 14, 17-23 (1967) (criminal defendants have constitutional right to compulsory process for obtaining witnesses in their favor). For these reasons, the motion judge did not err in denying the defendant's motion to dismiss the indictment.⁶ 3. Admissibility of retrograde extrapolation evidence.

The defendant next argues that the admission of the retrograde extrapolation analysis of his blood alcohol level was improper because it failed to meet the standards set forth in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), and adopted in part in *Commonwealth v. Lanigan*, 419 Mass. 15 (1994).

We disagree. The Daubert standard departed from the traditional test under *Frye v. United States*, 283 F. 1013 (D.C. Cir. 1923), which necessitated that " 'the community of scientists involved [must] generally accept[] the theory or process' for it to be admitted in evidence." *Canavan's Case*, 432 Mass. 304, 310 (2000), quoting *Commonwealth v. Cumin*, 409 Mass. 218, 222 (1991).

Under the Daubert-Lanigan standard, although general acceptance is a relevant factor, it is not the "essential ingredient." *Commonwealth v. Lanigan*, supra at 25. Indeed, "[t]he ultimate test... is the reliability of the theory or process underlying the expert's testimony." *Id.* at 24. Consequently, although a foundation may be laid by showing general acceptance of the scientific theory, "a

proponent of *459scientific opinion evidence may [also] demonstrate the reliability or validity of the underlying scientific theory or process by some other means,” id. at 26, such as “whether the theory or technique can be or has been tested,” and has been subject to peer review and publication.

Id. at 25. *Commonwealth v. Sands*, 424 Mass. 184, 185-186 & n.1 (1997). With these principles in mind, we find the evidence of retrograde extrapolation was properly admitted. Contrary to the defendant’s assertion, the Commonwealth provided, through its toxicology expert, Dr. Vallaro, ample evidence that retrograde extrapolation is a reliable method of determining blood alcohol levels.

Commonwealth v. Lanigan, supra at 24-25. Specifically, Dr. Vallaro testified to the scientific principles of retrograde extrapolation, which is a mathematical calculation used to estimate a person’s blood alcohol level at a particular point in time by working backward from the time the blood alcohol test was taken, taking into consideration rates of both absorption and excretion.

R.J. Kenney, Jr., & T.J. Farris, *Motor Vehicle Law and Practice* § 24.14 (3d ed. 1998). The defendant incorrectly maintains that Dr. Vallaro did not “remotely suggest that retrograde extrapolation had any general acceptance for any purpose beyond the monitoring of therapeutic drugs for medical uses.” To the contrary, the record reveals that, although Dr. Vallaro testified that retrograde extrapolation was used in “therapeutic drug monitoring,” he also made clear that “numerous people throughout the country” use retrograde extrapolation to determine an individual’s blood alcohol content at an earlier point in time, and that, in the relevant scientific community, this is a generally accepted method.

He acknowledged that there is some debate concerning the appropriate variables that should be used in making the calculations. In particular, conservative critics advocate the use of a lower excretion rate, such as .008 per cent an hour instead of .015 per cent an hour, which, after years of experimental research, has developed as a consistent average rate for alcohol excretion.

Other critics contest attempts to place a precise value on an individual’s blood alcohol level at an earlier point in time. In response to these concerns, Dr. Vallaro accounted for individual variability by using a well-established range of figures *460for the excretion of alcohol, including conservative figures, which favored the defendant.⁷ He also used a range, as opposed to a precise value, to estimate the alcohol concentration in the blood sample.

With respect to the absorption rate, the parties stipulated that “there was no ingestion of alcohol” by the defendant between the time of the collision and the administration of the blood test. Dr. Vallaro had the necessary information regarding when the alcohol absorption commenced and ended,⁸ without which, he conceded, he would be unable to conduct his analysis.

He employed a nationally used average alcohol absorption rate in conducting his analysis. Moreover, as defense counsel pointed out, the concepts of excretion and absorption are “solid scientific principles.” Dr. Vallaro also demonstrated that his calculation method for the retrograde extrapolation “can be or has been tested.” *Commonwealth v. Lanigan*, supra at 25.

In fact, he testified that the typical elimination rate of alcohol, ranging from .008 to .02 per cent an hour, with an average of .015 per cent an hour, was determined by many years of experimental testing. This typical excretion range had been tested on “many hundreds of people” and documented in published reports.

As discussed above, Dr. Vallaro himself conducted controlled experimental testing, and such experimental testing supported the range of variability that he used in ascertaining both the absorption rate and the excretion rate in the instant case. Dr. Vallaro also indicated that retrograde extrapolation had been the subject of peer review and publication.

The experimental data establishing a range of excretion since the 1930’s had been documented by published reports. For example, one peer reviewed article opined that, to account for individual variability, a conservative .008 an hour excretion rate should be used, as was done by Dr. Vallaro.

As the Commonwealth correctly asserts, the publications referenced by the defendant simply indicate that, due to variability, no precise value could be reliably determined by retrograde extrapolation, thus necessitating the use of a range of values.

As discussed above, Dr. Vallaro used such a range. Although in Massachusetts we have implicitly considered the issue of retrograde extrapolation, most recently in *Douillard v. LMR, Inc.*, ante 162, 163 (2001), see *Commonwealth v. Smith*, 35 Mass. App. Ct. 655, 633 (1993) (prosecutor entitled to think, when referring to retrograde extrapolation in opening statement, that such evidence would be admitted), we have never been asked to address the admissibility of retrograde extrapolation as a matter of law.

Several other jurisdictions have admitted similar evidence. See, e.g., *Ullman v. Overnight Transp. Co.*, 563 F.2d 152, 152-156 (5th Cir. 1977); *People v. Latta*, 304 Ill. App. 3d 791, 803 (1999); *Rice v. Merchants Nat’l Bank*, 213 Ill. App. 3d 790, 797 (1991) (while not required, retrograde extrapolation admissible); *State v. Jensen*, 482 N.W.2d 238, 240 (Minn.

Ct. App. 1992); *People v. MacDonald*, 227 A.D.2d 672, 674-675 (N.Y. 1996); *State v. Catoe*, 78 N.C. App. 167, 169-170 (1985); *State v. Fade*, 452 N.W.2d 779, 782 (S.D. 1990); *State v. McDonald*, 421 N.W.2d 492, 494 (S.D. 1988) (State must provide extrapolation back to time of offense for blood test results to be admissible); *Hartman v. State*, 2 S.W.3d 490, 494 (Tex.

Ct. App. 1999); *State v. Bradley*, 578 P.2d 1267, 1269 (Utah 1978); *State v. Dumont*, 146 Vt. 252, 254-255 (1985) (“relation back” testimony necessary to establish blood alcohol content at time of actual operation); *State v. Carter*, 142 Vt. 588, 591-593 (1983).⁹ Given the evidence of reliability presented by the Commonwealth, and the admissibility of similar evidence in other jurisdictions, the judge did not abuse his discretion in finding that the evidence of retrograde extrapolation was sufficiently reliable.

Canavan’s Case, 432 Mass. 304, 312 (2000).¹⁰ 4. Post-Miranda silence. Finally, the defendant claims the judge improperly denied the defendant’s motion in limine to exclude evidence of his failure to answer certain police questions.^{*} 11 He also claims the judge erroneously permitted the prosecutor to comment on this failure to answer such questions in his opening statement, thereby impermissibly referring to the defendant’s assertion of his right to remain silent.¹² These arguments fail because, as the judge properly found, the defendant did not invoke his right to remain silent.

The judge was warranted in finding that the defendant initially “voluntarily, knowingly, and intelligently” waived his right to remain silent by indicating that he understood his Miranda rights and by answering Officer Furtado’s questions after receiving those warnings. *Commonwealth v. Freeman*, 430 Mass. 111, 115 (1999). See *Commonwealth v. Hussey* (No. 1), 410 Mass. 664, 671, cert. denied, 502 U.S. 988 (1991); *Commonwealth v. Harris*, 11 Mass. App.

Ct. 165, 173 (1981) (“a knowing and intelligent waiver of [Miranda] rights may be inferred, in circumstances not otherwise casting doubt on voluntary waiver”). However, “a defendant has not only the right to remain silent from the beginning but also a continuing right to cut off, at any time, any questioning that does take place.” *Commonwealth v. Bradshaw*, 385 Mass. 244, 265 (1982), and cases cited.

The defendant’s failure to answer one specific question “must be interpreted in the context of his willingness to talk both immediately prior to and subsequent to” this particular question. *Commonwealth v. Pennellatore*, 392 Mass. 382, 387 (1984).

The fact that the defendant was silent in response to the question concerning where he had been drinking did not constitute an affirmative indication “that he [was] invoking the right he previously waived.” *Commonwealth v. Roberts*, 407 Mass. 731, 734 (1990). See *Commonwealth v. Pennellatore*, supra; *Commonwealth v. Ewing*, 30 Mass. App. Ct. 285, 287 (1991) (defendant’s decision not to answer particular question did not constitute indication that he was invoking previously waived right to remain silent).¹³ Indeed, for the rule of *Miranda v. Arizona*, 384 U.S. 436 (1966), to apply, “there must be...an expressed unwillingness to continue” (emphasis added), which the defendant in this case did not manifest.

Commonwealth v. James, 427 Mass. 312, 314 (1998), quoting Commonwealth v. Pennellatore, supra. As the judge found, the defendant could not “pick and choose,” because “[i]f he talks, what he says or omits is to be judged on its merits or demerits, and not on some artificial standard that only the part that helps him can be later referred to. This was not a case where the government commented upon... a prior exercise of rights.

The government asked the jury to measure what the defendant [did not say] when he had no rights because he had voluntarily waived them.” United States v. Goldman, 563 F.2d 501, 503 (1st Cir. 1977), cert. denied, 434 U.S. 1067 (1978), quoting Vitali v. United States, 383 F.2d 121, 123 (1st Cir. 1967). *464 Where the record is bereft of any indication that the defendant ever invoked his right to remain silent, the judge did not err in denying the defendant’s motion in limine.

Commonwealth v. Magee, 423 Mass. 381, 384 (1996), quoting Commonwealth v. Mello, 420 Mass. 375, 381 n.8 (1995) (“In reviewing the judge’s action, we ‘accept[] the judge’s subsidiary findings of fact absent clear error, give[] substantial deference to the judge’s ultimate findings and conclusions of law, but independently review[] the correctness of the judge’s application of constitutional principles to the facts found’ ”).

Likewise, the prosecutor’s comment and the testimony concerning the defendant’s refusal to answer certain questions posited by the police “cannot be construed as an impermissible comment on the defendant’s having invoked that right.” Commonwealth v. MacKenzie, 413 Mass. 498, 513 (1992). See Commonwealth v. Thompson, 431 Mass. 108, 118 (2000) (where defendant did not invoke his right to stop questioning and be silent, proper for prosecutor to comment on defendant’s failure to ask appropriate questions regarding condition of his wife and daughter).

Because we conclude that neither the motion judge nor the trial judge committed any error, we affirm the judgment of conviction. So ordered. The defendant timely filed an appeal in the Appeals Court. A single justice of the Appeals Court released him from incarceration and stayed the sentence pending the resolution of this appeal.

The Commonwealth unsuccessfully appealed from that order to a single justice of this court who denied its petition under G. L. c. 211, § 3, from which the Commonwealth appealed. Commonwealth v. Senior, 429 Mass. 1021 (1999). This attorney was not the attorney who represented the defendant at trial and on appeal.

The only evidence that the defendant or the attorney indicated to the hospital’s employees that they expected that the test results would be privileged arises from the Commonwealth’s cross-examination of the attorney at the motion hearing.

The attorney responded: “Did I say to them, ‘I want you [as] part of the defense team,’ the answer’s no. Did I retain them or did I request them to conduct the blood alcohol pursuant to attorney-client privilege, that was my understanding and I conveyed it” (emphasis added).

The attorney never articulated how he “conveyed” this expectation to the personnel at the hospital. The current relevant rule, Mass. R. Prof. C. 3.8 (f), 426 Mass. 1397 (1998), was adopted after the subpoena was issued in this case. It is similar to, yet more detailed than, S.J.C. Rule 3:08, PF 15, 396 Mass. 1217 (1986). While there is no statutory patient-physician privilege per se, there is a legislatively created policy favoring the confidentiality of medical records.

G. L. c. 111, §§ 70, 70E. Section 70, relied on by the defendant, governs a hospital’s maintenance and disclosure of its records. That section provides, in relevant part, that hospitals must maintain “records of the treatment of the cases under their care including the medical history and nurses’ notes,” and that such records shall not be subject to G. L. c. 66, § 10 (concerning inspection of public records), “provided... that upon proper judicial order, whether in connection with pending judicial proceedings or otherwise... and in compliance with the terms of said order... such records may be inspected and copies furnished on payment of a reasonable fee.” *Id.* Here, the defendant claims that the Commonwealth did not obtain a judicial order before subpoenaing his records from the hospital, as required by § 70.

However, as the Commonwealth correctly points out, the grand jury summons expressly states that “[t]his medical information is hereby ordered to be produced pursuant to [G. L. c.] Ill, [§] 70,” and this order was signed by a judge in the Superior Court.

Moreover, even if the defendant’s blood test results were confidential, and improperly obtained, we have held, at least in the civil context, that a breach of patient-physician confidentiality does not require exclusion at trial. *Schwartz v. Goldstein*, 400 Mass. 152, 153 (1987).

The defendant’s other claims, including prosecutorial misconduct and improper discovery and admission in evidence under Mass. R. Crim. R 14 (a) (3) (A), 378 Mass. 874 (1979), are without merit. At the low end of the range, Dr. Vallaro estimated that a person would eliminate alcohol at the rate of .008 grams per one hundred milliliters an hour. According to Dr. Vallaro, this is considered a very conservative figure.

At the high end of the range, he estimated that a person would eliminate alcohol at a rate of .02 grams per one hundred milliliters an hour. He testified that, based on years of research conducted since the 1930s, this has been considered a “typical excretion range” and that, in general, a person loses about .015 grams per one hundred milliliters an hour. Such information included the starting concentration of alcohol, and the time elapsed between the person’s last drink and the taking of the blood sample.

The cases on which the defendant relies to support the proposition that retrograde extrapolation has not been admitted in other jurisdictions are readily distinguishable. In *Kempe v. Domestic Corp.*, 866 F. Supp. 817, 820 (D. Del. 1994), the probative value of retrograde extrapolation evidence was determined to be outweighed by its potential for unfair prejudice where it was

impossible to determine how fluid loss due to severe burns and intravenous fluids administered to counteract such fluid loss affected the plaintiff's blood alcohol level.

In *McGrew v. Pearlman*, 304 Ill. App. 3d 697, 704-706 (1999), *462 the court did not discuss the validity of retrograde extrapolation, but merely found the blood alcohol level unpersuasive in light of all of the other evidence presented with respect to intoxication.

In *Reuter v. Korb*, 258 Ill. App. 3d 142, 154-157 (1993), the judge did not abuse his discretion in excluding retrograde extrapolation evidence where, even if it had been admitted, the evidence would be insufficient to prove that the defendant was intoxicated.

In *Commonwealth v. Zugay*, 745 A.2d 639, 646 (Pa. Super. Ct. 2000), the issue was whether the admission of the defendant's blood alcohol level without retrograde extrapolation evidence was proper, and thus, the case is inapposite.

Finally, with respect to *State v. Wolf*, 605 N.W.2d 381 (Minn. 2000), and *Commonwealth v. Petrovich*, 538 Pa. 369 (1994), the evidence was excluded because there was insufficient evidence as to when the defendant had his last drink.

In *State v. Wolf*, *supra* at 385, other basic information (such as an accurate measure of the defendant's height and weight at the time of arrest) was also absent from the record. The defendant's unsupported contention that the judge erroneously instructed the jury on the blood alcohol test is without merit. Contrary to the defendant's assertion, the judge did not "[e]schew[] the appropriate constitutional analysis in favor of a bare claim of substantive relevancy." Rather, he considered the fundamental question whether the defendant had asserted his right to remain silent.

The prosecutor stated: "And when asked where he was drinking, the defendant put his head down and wouldn't answer." The judge properly found, "He didn't say, 'I refuse to answer any more, I want a lawyer or I'm not going to talk any further' and did answer additional questions.... [The defendant's failure to answer the question about where he had been drinking] would not... constitute a refusal or an assertion of the right to remain silent."