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OF THE COMMITTEE ON OPINIONS

SUPERIOR COURT OF NEW JERSEY
CHANCERY DIVISION: PASSAIC COUNTY

PASSAIC COUNTY BOARD
OF SOCIAL SERVICES ON
BEHALF OF T.M.,

Plaintiff,

v.

A.S.,

Defendant.

DOCKET NO.: FD-16-000650-15

CIVIL ACTION

OPINION

APPROVED FOR PUBLICATION

AUGUST 13, 2015

COMMITTEE ON OPINIONS

Decided: May 4, 2015

Liana Allen for the Passaic County Board of Social Services, on behalf of T.M.

A.S., defendant, pro se.

MOHAMMED, J.S.C.

This matter having come before the court in the presence of the plaintiff, the Passaic County Board of Social Services (Board) on behalf of T.M. (T.M. or mother), and defendant, A.S. (A.S. or father), who is pro se, and the parties having submitted certifications, given testimony, and the arguments of the parties taken into consideration, and with findings of fact and conclusions of law having been made, plaintiff's application for paternity establishment and child support as to one child, A.M., is granted and plaintiff's motion to withdraw its application for paternity establishment and child support as to the other child, B.M., is denied.¹

¹ In this opinion, the court used initials to refer to the parties and the children.

This case arises from the following facts: The Board filed an application on behalf of T.M., seeking to establish paternity and child support from defendant for two female twins. The Board is currently providing public assistance to the mother. DNA tests were ordered and the results indicated that defendant is the father of one, but not the other twin.

This is a case of first impression in New Jersey and only a handful of reported cases exist nationwide. This court had to determine whether to accept DNA paternity test results showing that A.S. is the father of only one and not the other twin, a phenomenon that is widely accepted in the relevant scientific communities, even though such results are considered scientifically and statistically rare. After considering all of the proofs, and the analysis, and the arguments presented, the court is satisfied that the general concept of using DNA to establish paternity is widely accepted in the relevant scientific communities and is valid. Furthermore, and more importantly, the court is also satisfied by clear and convincing evidence that the paternity test conducted by Laboratory Corporation of America (Lab Corp) in the present case is accurate and reliable enough to be used in this paternity proceeding even though it is a rare phenomenon to have twins with two different fathers.

Procedural History and Factual Findings

Prior to the birth of the twins, T.M. and A.S. were involved in a romantic relationship. On January 12, 2013, mother gave birth to twins, A.M. and B.M. At the time the current action commenced, the mother identified A.S. as the father of both children. On October 6, 2014, the Board filed a complaint on the mother's behalf against A.S., seeking to establish paternity and child support for the two children.

On November 18, 2014, the parties appeared before a hearing officer and DNA testing was ordered. After the court received the DNA test results, the matter was listed for January 6, 2015.

The DNA test results indicated that A.S. is the father of A.M. by a probability of 99.99%. Furthermore, the test results excluded A.S. as the father of the other twin, B.M. As a result of this unusual split in paternity, the court listed this matter for a plenary hearing on March 25, 2015. Because this matter concerned a potential challenge to one or more state regulations or codes, the Attorney General was notified. It elected not to appear at the hearing.

At the plenary hearing, A.S., T.M., and the Board's attorney appeared. The Board sought to withdraw its application for establishment of paternity and child support as to B.M., but proceeded in its application with respect to establishment of paternity and child support as to A.M. Dr. Karl-Hanz Wurzinger, a laboratory director of the Identity Testing Division at Lab Corp, appeared as an expert witness on behalf of the Board. Wurzinger holds learned credentials in the DNA field. He holds two Bachelor's of Science degrees in Zoology and Forestry, two Master's degrees in Zoology and Forestry, and a Ph.D. in Zoology. Wurzinger has over twenty-five years of professional experience in DNA testing. He has extensive knowledge regarding genetic testing and has been accepted as an expert witness in more than 100 courts in numerous states regarding genetic testing. Based on his academic achievements, professional experience, and extensive knowledge, this court accepted Wurzinger as an expert in the application and interpretation of genetic test results relevant to paternity evaluation. In addition, Marquise Johnson, a local DNA specimen collector for Lab Corp testified on behalf of the Board.

The mother testified that she had sexual intercourse with two men, A.S. and another man, within about a week of each other. The mother subsequently gave birth to twins, A.M. and B.M. However, given that the mother only provided defendant's name to the Board at the time that the application was filed, DNA tests were only performed with respect to him. The Board relied on

the expert testimony of Wurzinger and Johnson and the DNA test results to establish paternity of A.S. as to A.M.

Discussion

The evolution of DNA testing and how it has impacted legal matters, and specifically family court actions, is an important consideration in this court's analysis of the present case. Indeed, while no party would seriously argue against the scientific value of DNA testing, when unusual results occur, New Jersey statutes permits any interested party to a paternity action to challenge the reliability and validity of DNA test results. DNA tests, like blood tests, are regulated by the state in the criminal context, but left to private entities in non-criminal contexts. Certainly, an unusual DNA result in the Family Part would lead to a heightened concern and require a court to closely examine factors giving rise to the result before accepting the DNA evidence. This is such a case.

Legal Standard for Accepting Scientific Evidence

The New Jersey Supreme Court has adopted a flexible standard that a scientific technique have sufficient scientific basis to produce uniform and reasonably reliable results and contribute materially to the ascertainment of truth. State v. Cary, 49 N.J. 343, 352 (1967) (voiceprint). See also Romano v. Kimmelman, 96 N.J. 66, 80 (1984) (breathalyzer); State v. Kelly, 97 N.J. 178, 210 (1984) (battered woman syndrome); State v. Cavallo, 88 N.J. 508, 520 (1982) (psychiatric testimony as to psychological traits of a rapist); State v. Hurd, 86 N.J. 525, 536 (1981) (hypnosis).

I. DNA as a Valid Scientific Principle

Several decades ago, scientists realized that genes are comprised of unique components that vary among individuals in a species, a realization that gave rise to the discovery of deoxyribonucleic acid ("DNA"). See Andrew B. Dzeguze, The Devil in the Details: A Critique of

Ksr's Unwarranted Reinterpretation of "Person Having Ordinary Skill", 10 Colum. Sci. & Tech. L. Rev. 1, 52 (2009) (stating that the “[s]equencing [of] DNA, an arduous and highly specialized skill just a few decades ago, is now a standard procedure in every molecular biology laboratory”) (internal quotation marks omitted); see also David C. Szostak, Something More to the Story Moore v. Regents of the Univ. of Ca. Two Decades Later, 31 J. Legal Med. 443 (2010) (noting that DNA was not discovered until 1953). Over time, DNA testing became a widespread and standard practice in areas such as genetic counseling, criminal identification, and paternity disputes. This is because “[e]xcept for identical twins, the DNA of a person is for practical purposes unique.” National Research Council, DNA Technology in Forensic Science 3 (1992). Thus, “a match between two DNA patterns can be considered strong evidence that the two samples come from the same source.” Id. at 9.

Courts have found DNA evidence to have far-reaching legal implications. DNA technology and tests are used to identify, convict, or exonerate an individual in a criminal matter, to help determine if an individual is genetically susceptible to certain diseases, to determine family ancestry for historical or intestate purposes, to establish or disestablish rights and obligations between individuals in the family domain, etc. As such, DNA has been widely accepted as scientifically reliable and admissible evidence by courts throughout the country, including those in New Jersey. See, e.g., State v. Harvey, 151 N.J. 117 (1997); State v. Dishon, 297 N.J. Super. 254 (App. Div. 1996), certif. denied, 149 N.J. 144 (1997); State v. Marcus, 294 N.J. Super. 267 (App. Div. 1996), certif. denied, 157 N.J. 543 (1998).

II. Establishment of Paternity

In the family law context, it is widely accepted that courts have a duty to protect the best interests of children. See, e.g. Fantony v. Fantony, 21 N.J. 525, 536 (1956); P.T. v. M.S., 325 N.J.

Super. 193, 215 (App. Div. 1999). In order to do so, courts have considered a long list of factors, including but not limited to the stability of the child's home environment, the existence or lack of a family unit, and the child's physical, emotional, and mental needs. N.J.S.A. 9:2-4. See also Todd v. Sheridan, 268 N.J. Super. 387, 393 (App. Div. 1993).

Within this domain, courts in several states have recognized the profound right of a child to know the identity of his or her parents. See, e.g., Jensen v. Runft, 843 P.2d 191, 193 (Kan. 1992); In re Calcaterra, 56 P.3d 1003, 1005 (Wash. Ct. App. 2002). In New Jersey, the Legislature and courts have echoed this sentiment. N.J.S.A. 9:17-41(b), for example, provides that a parent-child relationship may be found in several ways, including

by proof that [the father's] paternity has been adjudicated under prior law; under the laws governing probate; by giving full faith and credit to a determination of paternity made by any other state or jurisdiction, whether established through voluntary acknowledgment or through judicial or administrative processes; by a Certificate of Parentage as provided in section 7 of P.L.1994, c. 164 (C.26:8-28.1) that is executed by the father, including an unemancipated minor, prior to or after the birth of a child, and filed with the appropriate State agency; by a default judgment or order of the court; or by an order of the court based on a blood test or genetic test that meets or exceeds the specific threshold probability as set by subsection i. of section 11 of P.L.1983, c. 17 (C.9:17-48) creating a rebuttable presumption of paternity.

New Jersey courts have found that

“one would expect that a child has a natural yearning to know his true parentage. Every child has the need to feel rooted, to find himself, and to know his true origins. When such knowledge is denied the child may resort to fantasy to fill the void. As the links to his past disappear with time, the search for his identity will become more difficult. The anxiety to learn what was in his past may be pathological, making it more difficult for the child to lead a useful life and to form meaningful relationships.”

[In re K, 92 N.J. Super. 204, 208 (Co. Prob. Div. 1966); see also M.A. v. Estate of A.C., 274 N.J. Super. 245, 255 (Ch. Div. 1993) (stating “it is important that a child . . . know who he is and from whence he came”).]

Moreover, New Jersey courts have also recognized that determining a child's best interest includes examining whether the child has an ability to obtain genetic information for the purpose of medical treatment and genealogical history. The court in M.A., supra, 274 N.J. Super. at 256, stated:

[C]ertain diseases are genetic in origin and may be passed on to offspring. It may be critical to preserving [the child's] health that he have knowledge of potential diseases, illnesses, abnormalities, birth defects or deficiencies which he may inherit from the decedent and his forbearers. Moreover, knowing his natural genealogy may provide [the child] and his physicians with potential sources for blood transfusions, bone marrow and organ donor transplants.

In the Family Part, the paramount consideration of a case is always the best interest of the child, which includes the child's greater legal rights such as the right to know one's biological parents. As such, the trial court, as a gate-keeper and fact-finder, must ensure the integrity of DNA evidence, the reliability of the testing process and the test results. This is true whether the case concerns one child or multiple children.

The fact that twins may originate from a single fertilized egg (in which case the twins would have identical physical appearances and DNA profiles) or from two different fertilized eggs (in which case the twins would be fraternal or have distinct physical appearances and DNA profiles) necessitates close scrutiny by the legal community. According to Wurzinger, the occurrence of fraternal twins, also known as dizygous twins, is more common than that of identical twins. See Eloy Girela, et. al., Indisputable Double Paternity in Dizygous Twins, 67 Fertility and Sterility 1159, 1160 (1997). Fraternal twins are twins that physically look different (are non-identical) but may have the same father or two different fathers. Id. at 1159. Fraternal twins can arise through the process of superfecundation, which means that two ova are fertilized within the same menstrual cycle. See Nancy L. Segal, Human Cloning: Insights from Twins and Twin

Research, 53 Hastings L.J. 1073, 1079 (2002). If a woman has coitus with either one man or with different men during a single polyovulatory period, superfecundation could result and the twins could have either the same father or different fathers, respectively. Id. at 1079. The scientific community considers twins having two different fathers as a rare phenomenon. This phenomenon is known as heteropaternal superfecundation, and the twins born are said to be bipaternal or heteropaternal twins.² The present matter before this court concerns a case of heteropaternal dizygotic twins.

Although heteropaternal superfecundation is a rare phenomenon, there appears to be an increase in the number of reported heteropaternal twins since 1995. See Indisputable Double Paternity, *supra*, at 1159. In 1997, approximately one case in every 13,000 reported paternity cases involved bipaternal twins. Id. at 1160. However, there appears to be no central registry documenting the incidence of heteropaternal superfecundation in New Jersey or anywhere else. Most of the literature that describes the rate of heteropaternal superfecundation is based on self-reporting or originates from disputed paternity proceedings. Today, it is believed that the incidence of bipaternal twins is increasing at a higher rate compared to fifty years ago mainly due to assistive reproductive technologies, ovulation induction, promiscuity, and other factors. Id. at 1160. Wurzinger opined that this phenomenon is widely accepted in the medical community, specifically by obstetricians and gynecologists. Moreover, an increase in paternity testing and advances in technology in general has substantially increased the likelihood of detecting bipaternal twins.

² This court will use interchangeably the terms heteropaternal twins, bipaternal twins, and heteropaternal dizygotic twins.

Despite the scientific community's wide acceptance of rare genetic test results such as heteropaternal superfecundation, this court found only two reported cases on-point nationwide, and none at all in the State of New Jersey. In Tonnessen v. Denver Publishing Company, 5 P.3d 959 (Colo. App. 2000), the Colorado Court of Appeals affirmed the ruling by a lower court that dismissed the plaintiff's claim against the defendant for defamation, invasion of privacy, and outrageous conduct. The case focused on an article published by the defendant alleging that the plaintiff's ex-wife had recently given birth to two twins allegedly fathered by different men. Id. at 962. A paternity test revealed that the plaintiff was the father of one of the twins, but not the other. Id. at 962. The plaintiff's ex-wife stated that her boyfriend had fathered one of the twins and alleged that the plaintiff raped her sometime thereafter and fathered the other twin. Id. at 962. While that court's opinion focused on the underlying legal claims (defamation, libel, invasion of privacy and outrageous conduct), it nevertheless acknowledged the uniqueness of heteropaternal superfecundation.

In In Re Commissioner of Social Services of the City of New York, ex rel. Celia D., 628 N.Y.S. 2d 270 (App. Div. 1995), the petitioner-mother brought separate proceedings against the father-respondent seeking paternity declarations on behalf of her twins. Genetic tests revealed that the respondent was the father of one twin but not the other, and as such, she withdrew her application for paternity establishment as to one of the children. Id. at 270. When the parties appeared in court, their testimony established that the mother had engaged in sexual intercourse with another man during the period when she was dating the respondent. Id. at 270-71. During that hearing, Wurzinger, then the Associate Director of the Department of Paternity Evaluation at Roche Biomedical Laboratories in Burlington, North Carolina, opined that "if the petitioner had ovulated at two different times during a 48 to 72 hour period and had sexual relations with two

men within that period, it was entirely possible that each of the eggs could have been fertilized by sperm from a different man.” Id. at 271. The court held that, given the “overwhelming probabilities of the blood genetic marker tests” (coupled with the mother’s faulty recollection of her sexual history), paternity could be established as to one twin but not the other. Id. at 272.

III. The Use of DNA to Establish Paternity: Collection, Testing, Processing and Results

Under N.J.S.A. 9:17-48:

the county welfare agency shall require or the court shall order the child and the parties to submit to blood tests or genetic tests unless a party claims, and the county welfare agency or the court finds, good cause for not ordering the tests.

The statute contemplates that genetic material may (and in some cases shall) be collected and tested to help establish a parent-child relationship between a putative father and child. As such, two primary tests have been adopted to achieve this goal. The first test, human leucocyte antigen (“HLA”) testing has been recognized as valuable in addressing issues pertaining to paternity in civil cases. R.K. v. Dep’t of Human Servs., Div. of Pub. Welfare, 215 N.J. Super. 342, 345 (App. Div. 1987). In view of the scientific community’s recognition of HLA testing as reliable and accurate, courts have found such evidence to be admissible in paternity suits. See Malvasi v. Malvasi, 167 N.J. Super. 513, 514 (Ch. Div. 1979). New Jersey trial courts have noted that HLA blood and tissue would be admissible in a disputed paternity case after the party seeking the test’s admission demonstrated that the equipment and methodology used had a high degree of scientific reliability and that the test was administered by qualified persons. J. H. v. M. H., 177 N.J. Super. 436, 441 (Ch. Div. 1980) (superseded by statute on other grounds as stated in Middlesex Cty. Bd. of Social Servs. v. G.G., 237 N.J. Super. 322 (App. Div. 1989)).

The second test, DNA testing, is also recognized as a reliable method of establishing paternity. Wingate v. Estate of Ryan, 149 N.J. 227, 242 (1997). The court also found that DNA

testing has a high degree of scientific reliability that would enable “few spurious claims” to go undetected. Id. at 242. This is because DNA tests for genetic markers can exclude 99% of those individuals who may be accused of paternity. Id. at 242. (citing Clark v. Jeter, 486 U.S. 456, 465, 108 S. Ct. 1910, 1916, 100 L. Ed. 2d 465, 474 (1988)).

Given the extent to which DNA has been accepted as a reliable indicator of a person’s identity and the myriad ways in which DNA evidence may be used, most states, including New Jersey, have adopted clear guidelines regarding the submission, identification, storage, and analysis of DNA samples for usage in criminal, family, and other matters. With respect to DNA sample collection in a criminal matter, the New Jersey Administrative Code specifically delineates the buccal swab as the preferred method for DNA sample collection. See N.J. A.C. 13:81-2.1(f) (noting that “the primary method of sample collection in New Jersey shall be by buccal swabbing using the standardized sample collection kit”). The Administrative Code also describes DNA sampling in a criminal context and states that “all buccal swab DNA samples shall be collected by individuals trained under the protocols established by the Division of Criminal Justice, utilizing the collection protocol prescribed in the ‘Instructions for State of New Jersey DNA Databank Convicted Offender DNA Collection Kit,’ version 5/19/03.” N.J.A.C. at 13.81-2.1(a). The same section notes that, “[t]he obligation to provide a sample shall be deemed to include the obligation to provide fingerprints or other identifying indicators.” N.J.A.C. at 13.81-2.1(e).

In addition to establishing the bases by which an individual may be subjected to a DNA test, and the procedural safeguards that must occur at the time of the sampling, the Administrative Code also lays out specific procedures for the handling and security of samples, testing of DNA, sample processing and analysis, storage of DNA samples and the typing of DNA sample results. See N.J.A.C. at 13.81-2.1(g-j). From the specificity of the provisions related to DNA testing in

the Administrative Code and Wurzinger's testimony, the court concludes that DNA testing is a highly controlled process that must be done with great precision.

Indeed, Wurzinger's testimony and this court's own research reinforce the notion that the State has established stringent guidelines for the DNA testing of twins that mirror those of the DNA Diagnostic Center ("DDC"), a national commercial DNA testing center. According to the DDC, when a genetic test is to be conducted involving twins, it is generally recommended that

both twins participate in the paternity test for several reasons. First, taking a DNA sample from each twin will confirm that the twins are indeed fraternal or identical, because the DNA profiles generated for the twins during the testing process can be compared. Identical twins have the same DNA because a single sperm cell has fertilized one egg, which then splits into two. On the other hand, fraternal twins may have different DNA profiles because they come from two different eggs that have been fertilized by different sperm cells.

[DNA Diagnostic Center, Twin Zygoty Test, 2014, available at <http://www.dnacenter.com> (last visited Apr. 13, 2015).]

The DDC presents possible DNA testing scenarios that may result when twins are involved:

- a. Initially, it is necessary to test only the mother, alleged father(s) and *both* twins. This test can determine if the alleged father(s) is (are) biologically related to one twin, both twins, or neither twin. DDC recommends having all the alleged fathers participate in the initial DNA test, if possible (they can submit samples at different appointments/times).
- b. If the initial DNA test proves that an alleged father is related to only one of the twins, this means that the twins are bi-paternal. In the case of twins with different fathers, it is possible to perform another paternity test with a second alleged father.

See id. at Paternity Testing: Twins with Different Fathers. In this case, T.M. only provided the name of one alleged father, A.S., to the Board. Therefore, no other potential father provided a sample at the DNA collection facility. When the DNA test results were returned, they indicated a probability of 99.99% that A.S. is the father of A.M., and excluded A.S. as being the father of

B.M. This court accepts the DNA as scientifically accurate and reliable and acknowledges the stringent protocols that New Jersey has established governing the collection and testing of DNA. Nevertheless, before accepting the results in this case, the court must pause and focus more critically on the results, given that they establish paternity for one twin but not the other.

Legal Analysis

It is well settled in the State of New Jersey that a mother may establish a father's paternity by obtaining a genetic test. See N.J.S.A. 9:17–41(b) (stating that a natural father's paternity may be established by, among other means, “an order of the court based on a blood test or genetic test that meets or exceeds the specific threshold probability as set by [N.J.S.A. 9:17–48(i)] creating a rebuttable presumption of paternity”) (emphasis added). This court is satisfied that DNA technology and identification techniques are based on sound scientific theory and that the results, if properly obtained therefrom, are sufficiently accurate and reliable. Yet this court also recognizes that the use of genetic test results creates a rebuttable presumption of paternity. Given the rarity of this medically acceptable phenomena, coupled with the general public’s lack of awareness, it is not unreasonable to expect that when one is confronted with the DNA test results that show each twin in a given case has a different father, an overwhelming majority will likely express sheer disbelief. This in turn will give rise to lack of confidence in the results. One may begin to question whether DNA is truly a valid indicator or “snapshot” of one’s identity.

This court must therefore adapt to meet changes in science and technology by broadening the scope of its inquiry. Our society continues to witness positive technological advances in a variety of disciplines. As the scientific and medical landscape continues to change, so should courts. A medical or scientific innovation or rarity should not create judicial uncertainty. Rather, it is essential that courts fully understand and analyze the underlying issues. Indeed, just as the

accuracy of eyewitness testimony depends on factors such as perception, memory, and credibility, the integrity and accuracy of DNA test evidence depends upon several factors, including the procedures in place at the DNA specimen collection facility and testing laboratory, the manner of collection and testing, the qualification and credibility of the analyst, and other quality control measures. Thus, this court focuses its inquiry on practical problems associated with the DNA collection and genetic testing, more specifically, the sampling, handling, processing, and analysis of DNA.

This court's research shows that few cases, if any, have been published regarding what factors are relevant when considering the integrity of a DNA testing process and results in a given case. This court finds that consideration of such factors is not only important to protect the interests of litigants but also to protect the best interests of children. This is because, as Wurzinger opined, "there is no single test or group of tests that can establish paternity to 100% certainty." This recognizes the far-reaching impact that DNA evidence may have on everyone involved in a given case and as such, requires this court to question the integrity, validity, reliability, and acceptability of DNA test results, especially in odd or rare cases in the first instant.

Therefore, the court, before accepting the paternity results, considered several factors relevant to DNA collection and testing, including: (1) the methods employed and conditions under which the DNA specimen was obtained; (2) the training, skill, and judgment of DNA handlers; (3) whether adequate procedures were in place for specimen collection, storage, transportation, sampling, handling and processing of DNA tests; (4) "chain of custody" considerations; (5) any evidence of tampering, hacking, user bias, or other external interference calling into question the integrity of the test result; (6) whether the testing laboratory adhered to scientifically acceptable, reliable, and established DNA testing and methodology standards; (7) the ability of handlers to

replicate test results submitted to the court; and (8) access to and handling of information regarding abnormal or irregular results, or those collected in error. The court examined these factors not only with respect to the testing facility, but with respect to the site-collection facility as well. This is so because the court found the integrity of the sample collection process can have a direct impact on the integrity of a DNA test and its result.

With respect to the methods employed and the conditions under which the DNA specimen was obtained, the court's inquiry focused on whether the specimen collection site utilized methods and acted under conditions in substantial conformity with those generally accepted. This is because the integrity of a DNA test and the validity of its results depend just as much on what happens at the specimen collection site as what occurs at the genetic testing laboratory. In the present matter, this court finds that the methods employed and the conditions under which the DNA specimens were collected in this case by Johnson, the local technician, were in compliance with those procedures set forth by Lab Corp. The court was impressed with, and found Johnson's explanation helpful in understanding the specimen collection process. According to Johnson, he verified the identity of both litigants prior to collecting genetic material from them independently in a closed room. Then, he placed the genetic samples in color-coded mailing packages to be sent to the laboratory. Johnson's actions in the present case were consistent with acceptable methods and conditions set forth by the scientific community and therefore, the court does not find any reason to question the DNA collection process.

As to the training, skill, and judgment of the DNA evidence handlers, the court finds that specialized knowledge and skills are required to handle genetic material and conduct testing of such material. These elements have direct impact on the genetic test results. If an individual charged with securing and handling genetic material lacks the necessary training, skill, and

judgment, he may seriously compromise the DNA test result. Similarly, if an individual tasked with matching genetic markers between specimens is unfamiliar with acceptable standards and recent developments in the field, he may improperly match key identifiers. In short, these errors can have a major impact on the reliability of the DNA test results.

In the present case, the court is satisfied with the DNA handler's training and skills. Johnson attended a mandatory training for Lab Corp specimen-collectors. There, he learned how to properly collect a DNA sample using the buccal swab. He completed additional training at the specimen-collection facility in Newark, New Jersey. Upon completion of the training, which lasted several days, Johnson was certified to collect DNA specimens for Lab Corp in accordance with the company's policies. As to the training and skills of handlers at the Lab Corp testing facility, Wurzinger, who analyzes the samples once they are received by his facility, testified that he has examined many thousands of cases involving paternity. He has been qualified in roughly fifteen states in the Northeast as an expert in the application and interpretation of genetic test results relevant to paternity evaluation. According to Wurzinger, he attends ongoing trainings to "keep up with genetic technology." Moreover, he attends trainings and certification courses mandated by national agencies. As such, the court has no reason to suspect that the training, skill, and judgment of the DNA handlers in this case would have compromised the genetic material so as to render an improper or incorrect result.

The court next considered whether acceptable procedures were in place for the collection, storage, transportation, sampling, handling, and processing of the DNA specimens as such procedures have a significant impact on both the test results and the manner in which the results are delivered. The court found helpful Johnson's detailed explanation regarding the procedure for collecting, storing, and transporting the DNA. According to Johnson, once parties arrive at the

local site, he identifies the parties, briefs them on the DNA collection process, and collects the DNA specimens by buccal swab. First, he uses the court order as well as two forms of identification to confirm whether the individuals submitting the DNA sample are the same individuals ordered by the court to submit to a DNA test. In addition, each person is fingerprinted. Next, he takes a photograph of the individual. Then, he collects samples with the buccal swab, first by swabbing the person's right cheek. He lets the specimen air-dry for a minute, and then places it into a color-coded collection envelope. Second, he swabs the person's left cheek and repeats the process. After placing both specimens in the collection envelope, he signs and dates the envelope. In addition, when twins are involved, Johnson stated that the process takes longer in that an additional child is involved. The last step in the process before shipping involves Johnson filling out and sending a daily log to the testing facility consisting of the following information: the total number of specimens that he collected during the day, and the names of the individuals who came to the DNA collection site for genetic testing. This last step, according to Johnson, helps ensure "that everything is coordinated." The court finds the procedure outlined by Johnson and followed in this case to be procedurally sound and not likely to have compromised the validity of the DNA test results.

According to Wurzinger, the Identity Testing Division of Lab Corp in which he works is accredited by the American Association of Blood Banks (AABB), a national organization that sets forth scientifically and medically acceptable procedures for genetic testing. Lab Corp adheres to the most current guidelines and standards set in place by the AABB that certifies testing facilities as to the protocol and procedures as to genetic testing. Such guidelines and standards, according to Wurzinger, are widely accepted by the scientific community. The record in this case is absent regarding any deviation from acceptable standard protocols and the court finds that the AABB

procedures were followed in this case. This court finds that the protocols in place in the current matter – at the collection site and DNA test site – were extensive and in conformity with the procedures mandated by the AABB, the laboratory’s accrediting agency. Therefore, they are not likely to have produced erroneous genetic test results in this matter.

The next factor that the court considered is the chain of custody for the DNA specimen, an extremely important factor. Under this factor, the court considered all of the individuals who may have handled the genetic material and test data before receipt of the final results. Given that thousands, if not millions of people take genetic tests for a variety of reasons, it seems possible that the chain of custody with respect to one sample could be easily broken if procedures and systems to handle the volume of tests is not in place.

In the present case, Johnson testified that he collects DNA samples from individuals in a closed room. He is the only one in the room with the individual, and he alone completes the entire collection process, including the sealing and mailing of the specimens. According to Wurzinger, once packages from local genetic testing sites arrive in the laboratory, the packages are examined visually to see if there is any evidence of tampering. If there is no evidence of tampering, then the packages are opened. Furthermore, the information on the paperwork accompanying the specimens is compared to the information on the envelopes containing the buccal swabs to make sure that everything is consistent. If there is no discrepancy, then the specimens from each person receive a unique identification number. From that point, the buccal swabs are sent to the laboratory for testing and the paperwork is sent for data entry. After the preliminary results are obtained, they are examined by only a handful of qualified and designated directors, including Wurzinger. All of the individuals involved with the genetic material in this matter – from the individuals at the sampling facility to those at the testing facility – handled the DNA material in an acceptable

manner. In short, the court is satisfied that the chain of custody was not compromised in this case in a way that would undermine the test results. Furthermore, the court finds that there was no evidence of tampering, hacking, user bias, or other external interferences with the DNA sample which may have directly impacted the chain of custody.

Whether the specimen collection site and testing facility adhered to scientifically acceptable, reliable, and established DNA testing and methodology standards is a factor that impacts the integrity of a genetic test. A trial court, as a gate-keeper, must determine whether a scientific process and tests were performed in substantial conformity with those standards that the scientific community deems acceptable and reliable. In the present matter, the court is satisfied with the testimony of Johnson and Wurzinger, which clearly substantiates that both the specimen collection site and testing facility functioned in accordance with standards accepted by the scientific community with respect to the genetic material at issue in this case.

With regard to the replication of lab results, the court finds this to be another important aspect of genetic testing. Furthermore, as Wurzinger opined, genetic tests often comprise of matching anywhere between twenty to thirty different genetic markers, and such tests must be reproducible. As Wurzinger stated, “[in the field of genetic testing], reproducibility means that if you test the same specimen multiple times, you get the same results, or if you test the same specimen multiple times from the same person, you get the same results.” In this case, the court accepts Wurzinger’s testimony that Lab Corp had no reason to suspect the validity of the test results and therefore, it did not have to reproduce the test.

Another important consideration is whether testing facilities are able to identify abnormal or irregular results. In the present matter, the court does not deem the test results to be abnormal. According to Wurzinger, his laboratory handles cases of heteropaternal superfecundation

approximately six times per year, and when he receives such results, he is not surprised. This is because the scientific community has been aware of heteropaternal superfecundation since the 1970s. According to Wurzinger, in the present case, had the results been deemed abnormal or erroneous, Lab Corp would have required a retesting or a resampling of the parties' DNA.

DNA testing and acceptance of the results is a fact sensitive inquiry in every case. Obviously, not all factors may be necessary nor given the same weight in every case. For example, if the chain of custody is broken in a DNA case, this may be enough for the court to not accept the DNA test results and order a new test without consideration of the other factors. Similarly, if no procedures were in place at the testing facility, this may be enough for a court to reject the DNA test result and establish parentage by other means. Finally, the court may choose to consider none of the above-mentioned factors if facts and circumstances surrounding the genetic testing, along with the results themselves, are relatively straight-forward and commonplace and may be admitted. Thus, these factors should come into consideration when a genetic test yields a rare outcome within the scientific and legal communities. This court reiterates the importance of avoiding blind acceptance of DNA test results when faced with a rare or unusual outcome. As this court has indicated, doing so will help courts make informed decisions regarding issues that affect individuals' rights and liberties within several legal contexts.

Conclusion

This court finds that the current method of DNA collection, handling, testing, and analysis in New Jersey is satisfactory, and as such, DNA paternity tests results in most instances may be accepted as reliable and accurate without any expert testimony. However, in rare or unusual occurrences, such as the one presented before this court, before accepting the DNA paternity

results, the court may need to consider expert testimony and/or additional factors to assess the integrity of a DNA test and the validity of its results.

For the foregoing reasons, this court finds that paternity shall be established for one child, A.M., and that A.S. shall be responsible for paying child support for said child at the rate of \$28 per week. Furthermore, the Board's application to withdraw its application for paternity establishment and child support for B.M. is denied. Given that the identity of B.M.'s father has not been established, the court hereby dismisses the complaint against A.S. concerning B.M. with prejudice.