COMMONWEALTH OF MASSACHUSETTS
DIVISION OF ADMINISTRATIVE LAW APPEALS

August 27, 2019

Middlesex, ss.

Docket No. CR-14-415

FRANCIS J. JUDD, Petitioner

v.

CAMBRIDGE RETIREMENT BOARD, Respondent

DECISION

Appearance for Petitioner:

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Appearance for Respondent:

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Administrative Magistrate:

Mark L. Silverstein, Esq.

Summary of Decision

Accidental Disability Retirement Benefits - Statutory Presumptions - Cancer Presumption, M.G.L. c. 32, § 94B - Firefighter - Liver cancer - Case submitted for decision upon written submissions - Evidence needed to rebut presumption that cancer was suffered in line of duty - Presumption not rebutted by preponderance of evidence - Possibility of non-service related cancer causation (alcohol abuse, hemochromatosis, and related cirrhosis of the liver) insufficient to rebut the presumption that firefighter's liver cancer was service-related.

Petitioner, a former municipal paid firefighter who became incapacitated as a result of developing liver cancer that ultimately proved fatal, prevails in his appeal challenging a retirement board's decision denying his accidental disability retirement application based upon this disease. Prior to the Board's action, a medical panel majority had concluded that the firefighter's disabling cancer was likely work-related, because the evidence of a non-service related cause for the firefighter's cancer (alcohol consumption) was inconclusive, and the M.G.L. c. 32, § 94B "cancer presumption" (that a firefighter's disabling cancer affecting the digestive system (among other cancer types) was presumed to have been suffered in the line of duty) was properly applied. The Board relied upon the minority medical panel opinion that the firefighter's liver cancer was most likely related to a non-service related cause—alcohol abuse and related cirrhosis.

The Board's decision is reversed, and accidental disability retirement benefits are awarded to the firefighter posthumously. The M.G.L. c. 32, § 94B cancer presumption applies here; the firefighter's physical examination upon entering service revealed no condition of cancer, he spent more than five years in service as a paid firefighter, and he responded to firefighting calls during his service. The record includes injury reports the firefighter filed regarding his inhalation of smoke and chemicals during fires he fought. It is not disputed that he fought fires or that in doing so, he was likely exposed to known carcinogens. The medical panel majority concluded that the firefighter's work may have predisposed him to hepatocellular cancer, and that while a significant alcohol intake could have done so as well, the exact contributions of each toxin to which he was exposed were impossible to quantify. The medical record refers to heavy alcohol consumption by the firefighter, but this appears based primarily upon what the firefighter told treating or examining physicians, and lacks corroboration by laboratory results, recorded evidence of an odor of alcohol on the firefighter's breath, work records showing absenteeism due to alcohol consumption or treatment, or any records of treatment for alcohol abuse. Although his liver was cirrhotic in appearance, no diagnosis confirmed cirrhosis related to alcohol consumption. The firefighter was determined to have genetic hemochromatosis, a condition causing a high level of iron accumulation that can damage organs including the liver, and that may itself be caused by exposure to toxins. However, the medical records include no diagnosis establishing this condition as the cause of the firefighter's liver cancer. As the record does no more than suggest alcohol abuse and hemochromatosis as possible non-work related causes, the applicable presumption that the firefighter's liver cancer was service-related is not rebutted by a preponderance of the evidence.

Petitioner Francis J. Judd, a retired City of Cambridge paid firefighter, appealed the

Cambridge Retirement Board's August 5, 2014 denial of his application for accidental disability retirement (ADR) due to permanently-disabling hepatocellular carcinoma (liver cancer), a cancer of the digestive system that was diagnosed in 2012 while he was still in firefighting service. Mr. Judd's ADR application relied upon the M.G.L. c. 32, § 94B "cancer presumption" for firefighters, which provides in pertinent part that any condition of cancer affecting the digestive system (among other types of cancer the statute specifies) and resulting in total disability or death to a uniformed member of a paid fire department "shall, if he successfully passed a physical examination on entry into such service . . . be presumed to have been suffered in the line of duty, unless it is shown by a preponderance of the evidence that non-service connected risk factors or non-service connected accidents or hazards undergone, or any combination thereof, caused such incapacity."

A medical panel comprising three oncologists (Dr. Robert B. Liberman, Dr. Ayman Elfiky, and Dr. Mark S. Lebovits) was convened to examine Mr. Judd and determine, via a certificate for accidental disability retirement based upon cancer, whether he was disabled from performing his usual job duties as a firefighter as a result of his liver cancer, whether the disability was likely to be permanent, and whether it might be work-related—specifically, whether Mr. Judd's "incapacity was such as might be the natural and proximate cause of the personal injury sustained or hazard undergone on account of which retirement is claimed." All three panel members agreed that Mr. Judd was disabled, and that the disability was likely to be permanent. As to the last question, the medical panel members were asked to determine whether there was preponderating evidence that Ms. Judd's cancer-related disability was caused by a non-service connected accident or hazard—in other words, whether evidence of a non-service related accident or hazard sufficed to rebut the

presumption of M.G.L. c. 32, § 94B(1) that the cancer was suffered by Mr. Judd in the line of duty as a firefighter. A panel majority, comprising both oncologists, opined that his work as a firefighter could have contributed to the development of his liver cancer and that, as a result, the cancer presumption was properly applied, and the disabling cancer was such as might be the natural and proximate result of a work-related personal injury sustained or hazard undergone by Mr. Judd in the course of his work as a firefighter. The panel minority member, Dr. Lebovits, opined in the negative as to work-related cancer causation, citing a "history of alcohol abuse and alcoholic cirrhosis" that, in his opinion, was "more significant causally in the development of hepatocellular cancer than his exposure as a firefighter." Following a request by the board for clarification as to whether or not the cancer presumption applied, each panel member reaffirmed his opinion on this matter.

The Board thereafter denied Mr. Judd's ADR application on the ground that "[e]vidence of cirrhosis [was] found to outweigh the 94B presumption, in that cirrhosis is a very high risk factor for development of hepatocellular cancer." Mr. Judd timely appealed the Board's denial. In response to DALA's first prehearing order, Mr. Judd filed a prehearing memorandum on August 12, 2016, and the Board filed a prehearing memorandum on September 12, 2016. DALA scheduled a hearing for January 18, 2018. However, shortly before the hearing date, the parties agreed to submit the appeal for decision based upon written submissions, pursuant to 801 C.M.R. § 1.01(10)(c), and proposed a schedule for filing a stipulation of facts and proposed exhibits, which I approved.

Mr. Judd died on January 18, 2018. The parties filed their stipulation of facts and eighteen proposed stipulated exhibits on March 19, 2018. Mr. Judd's counsel filed his memorandum of law on the same date. Board counsel filed its memorandum of law on April 20, 2018. The record closed

at that point, and I marked the parties' exhibits in evidence (Exhs. 1-18). They are listed in the attached *Appendix*.

Findings of Fact

The parties have stipulated to the following facts, which I adopt as findings with non-substantive modifications:[1]

1. Petitioner Francis J. Judd, born in 1953,[2] was employed as a Cambridge firefighter from 1986 through January 17, 2014, when he was retired for accidental disability due to orthopedic injuries sustained in the performance of duties. (Exh. 9.)

2. By separate application dated April 2, 2013, Mr. Judd sought accidental disability retirement based upon "hepatocellular carcinoma–liver cancer," invoking the presumption contained in [M.]G.L. c. 32, § 94B. (Exh. 1.)

3. The Employer's Statement contained a pre-employment physical examination performed of the Petitioner in 1986 which failed to reveal evidence of cancer. (Exh. 3.)

4. Mr. Judd's Application was supported by the Treating Physician's Statement of Andrew Zhu. M.D., treating oncologist at the Massachusetts General Hospital, who certified as to his permanent incapacity from firefighting duties, and certified that there was no evidence of a

[1]/ I have substituted "Mr. Judd" for "the Petitioner" and "the applicant;" and "his" or "Mr. Judd's" for "the Petitioner's." I have also substituted "the Board" for "the respondent." I have added commas as appropriate, and have identified each of the exhibits to which each stipulated finding refers with the abbreviation "Exh." rather than "Ex."

[2]/ I have substituted the year of birth for the phrase "now age 65," used in the parties' Stipulated Facts, in view of Mr. Judd's death in January 2018.

uniquely predominant non-service connected influence on Mr. Judd's medical condition or a non-service connected accident or hazard undergone which caused Mr. Judd's incapacity. (Exh. 2.)

5. During Mr. Judd's employment as a Cambridge firefighter, he regularly responded to calls of fire, and was exposed to smoke, heat and potential carcinogens. (Exh. 12.)

6. A single physician medical panel consisting of Robert B. Liberman, M.D., Mark S. Lebovits, M.D., and Aymen Elfiky, M.D., was convened to examine Mr. Judd. The medical panel unanimously certified that the applicant was permanently incapacitated for further duty due to hepatocellular cancer. (Exhs. 4, 6.)

7. On the issue of the application of the presumption that Mr. Judd's disabling condition of cancer was presumed to have been suffered in the line of duty, Dr. Liberman certified in the affirmative, stating that:

> Mr. Judd's work as a firefighter may have predisposed him to hepatocellular cancer. He does have a history of significant alcohol intake which could have predisposed him to liver disease and hepatocellular cancer. The exact contributions of each toxin are impossible to quantitate. It would be ill-advised for Mr. Judd to return to his work that could re-expose him to toxins that might have precipitated his illness.

Dr. Liberman certified further that Mr. Judd's diagnosed form of cancer was one which may in general result from exposure to heat, radiation, or a known or suspected carcinogen as identified by the International Agency for Research on Cancer; that there were non-service connected accidents or hazards undergone which may have contributed to or resulted in the development of the cancerous condition, but there was no evidence that, although not irrebuttable, so predominated as to conclude that a uniquely predominant non-service connected influence on Mr. Judd's physical condition and/or nonservice connected accident or hazard caused his incapacity. (Exh. 4.)

8. On the issue of the application of the presumption that Mr. Judd's disabling condition of cancer was presumed to have been suffered in the line of duty, Dr. Elfiky also certified in the affirmative, stating that Mr. Judd's career as a firefighter "could have contributed to his development of his condition and therefore is an existing causal relationship to his employment under the Cancer Presumption Law." (Exh. 6.)

9. On the issue of the application of the presumption that Mr. Judd's disabling condition of cancer was presumed to have been suffered in the line of duty, Dr. Lebovits certified in the negative, opining that Mr. Judd had a:

> history of alcohol abuse and alcoholic cirrhosis, [and] developed hepatic cell carcinomas superimposed upon these conditions. It is well known that cirrhosis is a very high risk factor for the development of hepatocellular cancer and as such in this case, the particular nature of Mr. Judd's underlying preexisting medical history, make it more likely than not that his own intrinsic medical conditions, i.e. alcohol abuse and alcoholic cirrhosis are more significant causally in the development of hepatocellular cancer than his exposure as a firefighter.

(Exh. 5.)

10. The Board sought further clarification from each physician on the relationship between Mr. Judd's alcohol use and the development of his liver cancer. The medical panel was advised of evidence that Mr. Judd did not have excessive absences, that he had an excellent work ethic, was dedicated to his job, performed in an exemplary manner and exhibited no effects of alcohol use. (Exh. 7.)

11. Dr. Liberman noted in his response that Mr. Judd:

> would have been exposed to toxins in the course of his work directly in firefighting and also in overhaul. His alcohol history and potentially other risk factors would not have outweighed the presumption of risk of cancer due to the course of his work as

> a firefighter. Against the diagnosis of alcohol-induced liver cancer is the absence of a diagnosis of cirrhosis, which would predispose development of liver cancer from alcohol.

(Exh. 4.)

12. Dr. Elfiky responded, in pertinent part, that:

> given no other explanation for liver pathology . . . of cirrhosis or portal hypertension, the only other explanation for the patient having developed this pathologic finding in the liver was his exposures as a firefighter. Specifically, firefighters are routinely exposed to many products of combustion, smoke, gas, and toxic chemicals. In addition, Firefighters can be exposed over the course of their careers to asbestos, diesel exhaust, polychlorinated biphenyls, which are PCBs, and polycyclic aromatic hydrocarbons. Moreover, literature evidence shows that firefighters have 2 times the incidence for liver cancer. As such, given the known and accepted exposures which firefighters are subjected to over the course of their careers, it is likely that Mr. Judd's exposure to similar substances in time resulted in cirrhotic liver changes, which, in turn, provided a substrate for subsequent development of liver cancer.

(Exh. 6.)

13. Dr. Lebovits responded, in pertinent part, that:

> [a]fter reviewing extensive records showing what I feel is ample evidence to support alcohol abuse and cirrhosis, it is my opinion that this significant history outweighs any exposure he may have had during the course of his employment as a firefighter. My original opinions and conclusions remain unaltered.

(Exh. 5.)

14. The Board denied Mr. Judd's application, finding that "evidence of cirrhosis found to outweigh the 94B presumption, in that cirrhosis is a very high risk factor for the development of hepatocellular cancer." (Exh. 10.)

15. Mr. Judd filed a timely appeal with the Contributory Retirement Appeal Board. (Exh. 11.)

I also find the following additional facts that, while not stipulated by the parties, are material and appear to be undisputed:

16. During the time he worked as a Cambridge Fire Department firefighter, Mr. Judd filed several reports of injury with the Cambridge Fire Department based upon his inhalation of smoke and/or chemicals while responding to fires:

(a) On October 4, 1986, Mr. Judd filed a report certifying that he was injured on September 30, 1986 as a result of smoke inhalation while assisting in extinguishing and overhauling a fire at 310 Webster Avenue in Cambridge.

(b) On June 25, 1987, Mr. Judd filed a report certifying that he was injured on June 22, 1987 as a result of smoke inhalation while operating a pump during a response to a fire at 137 First Street in Cambridge.

(c) On May 25, 1989, Mr. Judd filed a report certifying that he was injured on May 24, 1989 as a result of smoke inhalation while working at a fire at 490 Columbia Street in Cambridge.

(d) On February 19, 1990, Mr. Judd filed a report certifying that he was injured on June 22, 1987 as a result of smoke inhalation and severe wetting while working at a fire at 2310 Massachusetts Avenue in Cambridge.

(e) On September 9, 1990, Mr. Judd filed a report certifying that he was injured on September 6, 1990 as a result of inhaling propane fumes for 30 minutes while extinguishing a propane fire and then dissipating vapors at 1 Ellsworth Park in Cambridge.

(f) On November 30, 1994, Mr. Judd filed a report certifying that he was injured on November 23, 1994 as a result of inhaling "smoke and possible airborne contaminants" and "hazardous material" while working to extinguish a fire at a laboratory at 26 Landsdowne Street in Cambridge, where there were "[e]xperiments in progress" and "radioactive materials."

(g) On September 6, 1995, Mr. Judd filed a report certifying that he was injured on September 4, 1995 as a result of exposure to leaking ammonia at 810 Main Street in Cambridge during a first response, and then upon re-entering with a haz-mat team.

(Exh. 12.)

17. Mr. Judd was diagnosed with hepatocellular cancer (liver cancer) in April 2012, and was "found to have imaging findings consistent with cirrhosis at that time." In August 2012, an MRI performed at Massachusetts General Hospital (MGH) showed that he had a single 2 x 1.8 cm lesion in segment 5 of his liver (part of the liver's right side). He underwent a CT-guided microwave ablation of the segment 5 liver lesion at MGH on August 28, 2012. A followup MRI showed a residual 4 cm tumor at the ablation site, and for that reason Mr. Judd underwent a repeat CT-guided radiofrequency ablation of this right-side liver mass at MGH on October 17, 2012. (Exh. 2: Massachusetts General Hospital, Liver Oncology Follow-up Note prepared by Dr. P. Peter Goroghchian and Dr, Andrew X. Zhu, dated Jan. 23, 2012.)

18. On October 23, 2012, approximately four months after being diagnosed with liver cancer, Mr. Judd was re-admitted to Massachusetts General Hospital for fever and abdominal pain, was diagnosed with cholecystitis (gallbladder inflammation) and, on October 25, 2012, he underwent

a cholycystectomy (surgical removal of the gallbladder). During this admission, Mr. Judd was noted to have a family history of hemochromatosis, a metabolic disorder that causes a high level of iron to accumulate in the tissues and organs, including the liver, and that "result[s] in iron overload and potential organ failure where the disorder is hereditary." He was also noted to have had a 58 year old fraternal twin brother with hemochromatosis who had died of liver disease recently. Mr. Judd was tested for hemochromatosis during this admission, and was found to be a carrier of the gene for this metabolic disorder, meaning that his hemochromatosis was hereditary. (Exh. 17: Massachusetts General Hospital Discharge Summary for admission of Oct. 23, 2012—Oct. 30, 2012, signed by Dr. Kenneth K. Tanabe, Oct. 31, 2012; and Exh. 18: Mount Auburn Hospital medical records; record entitled "Cumulative Summary of DNA Mutation Analysis Result: Heterozygous for the H63D Mutation," dated May 30, 2013.)[3]

19. Mr. Judd's hospital course following the cholecystectomy on October 25, 2012 complicated by septic shock caused by klebsiella bacteremia, which was treated, and Ms. Judd was released from MGH on October 30, 2012 to complete a 14 day course of antibiotics (Cipro). An MRI of the liver on November 14, 2012 showed no evidence of a new enhancing lesion in the liver's right hepatic lobe, and a subsequent MRI on January 14, 2013 showed no evidence of recurrent liver cancer. (Exh. 2: Attachment: Massachusetts General Hospital, Liver Oncology Follow-up Note

[3]/ The description of hereditary hemochromatosis, including the quoted material, is from Exh. 18: Mount Auburn Hospital Cumulative Summary (of DNA mutation analysis) at 12.

Among the possible medical complications resulting from hereditary hemochromatosis are liver failure and liver damage (cirrhosis). *See* Centers for Disease Control and Prevention: Public Health Genomics, *Hereditary Hemochromatosis*, https://www.cdc.gov/genomics/disease/hemochromatosis.htm.

prepared by Dr. P. Peter Goroghchian and Dr. Andrew X. Zhu, dated Jan. 23, 2013.)

20. Mr. Judd died on January 18, 2018. (Letter, Thomas F. Gibson, Esq. (Mr. Judd's counsel) to Administrative Magistrate Mark L. Silverstein, Division of Administrative Law Appeals, dated Feb. 6, 2018.)

Discussion

1. The Cancer Presumption, and the Statutory Prerequisites for Applying It

M.G.L. c. 32, § 94B(1) provides, in pertinent part, that:

> Notwithstanding the provisions of any general or special law to the contrary, any condition of cancer affecting the skin or the central nervous, lymphatic, digestive, hematalogical, urinary, skeletal, oral or prostate systems, lung or respiratory tract, resulting in total disability or death to a uniformed member of a paid fire department . . . shall, if he successfully passed a physical examination on entry into such service . . . be presumed to have been suffered in the line of duty, unless it is shown by a preponderance of the evidence that non-service connected risk factors or non-service connected accidents or hazards undergone, or any combination thereof, caused such incapacity. The provisions of this section shall only apply if the disabling or fatal condition is a type of cancer which may, in general, result from exposure to heat, radiation, or a known or suspected carcinogen as determined by the International Agency for Research on Cancer, so called.

The "cancer presumption" created by M.G.L. c. 32, § 94B(1) establishes that the condition of cancer is causally connected to the paid firefighter's job without the need to prove that causal connection further, unless the presumption is rebutted as the statute prescribes. *See Town of Ware v. Town of Hardwick*, 67 Mass. App. Ct. 325, 853 N.E.2d 599 (2006)(same evidentiary consequence of "heart law presumption" provided by M.G.L. c. 32, § 94, as to proof of causal connection between firefighter's disabling heart condition and his work as a firefighter).

Per the statutory language, the cancer presumption applies to firefighters who were actively employed in specified firefighting positions (including in municipal fire departments) on or after July 5, 1990, who regularly responded to fire calls during some portion of their service, and who had served for not fewer than five years at the time his cancer condition was first discovered or should have been discovered. All of these statutory conditions for applying the M.G.L. c. 32, § 94B cancer presumption are present here. It is not disputed that Mr. Judd successfully passed a pre-employment physical examination before joining the Cambridge Fire Department in 1986, and responded regularly to fire calls for 26 years before he was diagnosed with hepatocellular cancer in 2012, a form of digestive system cancer (one of the cancer types listed in section 94B) that may result from exposure to a known or suspected carcinogen as determined by the International Agency for Research on Cancer.[4]

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[4]/ Also undisputed here is the routine exposure of firefighters to known carcinogens in fighting structural and vehicle fires that include benzene, 1,3 butadiene, polycyclic aromatic hydrocarbons (a byproduct of creosote combustion and the combustion of many other organic materials), formaldehyde, styrene, polychlorinated biphenyls and asbestos, in concentrations considered to be hazardous. Benzene and 1, 3 butadiene are each listed by the International Agency for Research on Cancer (IARC) as "Group 1 carcinogens," meaning that there is sufficient evidence of their carcinogenicity in humans. *See, e.g.*, "List of IARC Group 1 Carcinogens," reprinted at https://en.wikipedia.org/wiki/ List_of_IARC_ Group_1_ carcinogens .

The routine exposure of firefighters to known carcinogens during firefighting was discussed recently in *Smith v. Gloucester Retirement Bd.*, Docket No. CR-13-249, Decision at 18 (Mass. Div. of Admin. Law App., Oct. 24, 2018). *Smith* arose in a different legal context—the denial of an application by a deceased municipal firefighter's surviving spouse for a "killed in the line of duty" death benefit pursuant to M.G.L. c. 32, § 100. The firefighter developed an aggressive, metastatic Stage IV non-Hodgkin's lymphoma not long after his direct, unfiltered exposure to carcinogens while fighting an extensive and prolonged structural fire. His subsequent treatment, with chemotherapy and radiation, appeared to have placed the condition of cancer into remission, but that proved temporary. He died from metastatic lung cancer 12 years after his treatment and 14 years after inhaling smoke during the large fire.

The retirement board in *Smith* had denied further action on the surviving spouse's death benefit

What is disputed, instead, is whether the presumption of M.G.L. c. 32, § 94B that Mr. Judd's liver cancer was suffered in the line of duty is rebutted by preponderating evidence that the cancer was caused by a non-service related factor, in particular alcohol consumption and/or hemochromatosis. I turn next, therefore, to what preponderating evidence means in the context of M.G.L. c. 32, § 94B, and whether the record presents preponderating evidence that Mr. Judd's disabling liver cancer was caused by a non-service related factor, and therefore rebuts the presumed in-service causation (here, exposure to carcinogens during firefighting).

2. Rebutting the Presumption: What Evidence is Required?

The cancer presumption recited by M.G.L. c. 94B is rebuttable. There is scant caselaw construing the statute, but the statute's plain language states what quantum of evidence is needed to

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application. DALA remanded the death benefit application for medical panel review as to whether there was a causal nexus between exposure to carcinogens during the fire and the firefighter's death from respiratory cancer 14 years later. In doing so, *Smith* relied upon (among other things) expert opinion in that case, and the underlying epidemiological work, of environmental and occupational epidemiologist Anne L. Golden, Ph.D. (currently an Assistant Clinical Professor of Environmental Medicine & Public Health at the Icahn School of Medicine at Mt. Sinai in New York) regarding the exposure of New York City firefighters to carcinogens and their resulting increased risk of developing conditions of cancer, including cancers of the respiratory, digestive and lymphatic systems, among them non-Hodgkins lymphoma. *Smith* also relied upon the report of a board-certified occupational medicine physician and internist who had examined the firefighter following his non-Hodgkins lymphoma diagnosis and opined, with a reasonable degree of medical certainty, that his exposure to carcinogens as a firefighter was "a substantial contributing cause" of the non-Hodgkins lymphoma he developed. *Id*. at 20-21.

Whether the condition of cancer that follows a firefighter's exposure to known carcinogens is non-Hodgkins lymphoma, a respiratory system cancer, or a cancer of any of the other bodily systems listed at M.G.L. c. 94B (including digestive system cancers such as liver cancer), the pathway of a firefighter's exposure to known carcinogens is typically the same —inhaling smoke and fumes while fighting fires. *See Smith*, *passim* and, specifically, at 8-9, 17-19, and 44.

rebut the presumption—"the condition of cancer . . . shall . . . be presumed to have been suffered in the line of duty, unless it is shown by a *preponderance of the evidence* that non-service connected risk factors or non-service connected accidents or hazards undergone, or any combination thereof, *caused* such incapacity." (Emphasis added.) Notably, section 94B does not provide that the presumption may be overcome by showing the possibility of a non-service related cause for the cancer. Based upon the statute's plain and succinct language, the cancer presumption that M.G.L. c. 32, § 94B provides can be overcome only by preponderating evidence showing that the cause of the firefighter's cancer was not service-related, not by the possibility of such a cause.

The statutory language does not instruct what "preponderance of the evidence" means. On this point, the caselaw is more instructive, although the decisions do not recite a common rule. Overall, evidence that "preponderates" is competent, substantial, and/or of superior weight, compared to competing evidence, and shows that the fact sought to be proved was more probable than not. Two decisions are illustrative. One, from the Supreme Judicial Court, involved the M.G.L. c. 32, § 94 "heart law presumption" of service-related heart diseases causing the death or disability of a paid police officer or firefighter, and the need for both the medical panel and the board to identify, in rejecting service-related causation, the "competent" evidence that rebutted the presumption, as section 94 required. *See McLean v. City of Medford*, 340 Mass. 613, 617, 166 N.E.2d 219, 223 (1960). The other decision, from DALA, relied upon the substance and weight of evidence showing a non-service related cause for a firefighter's liver cancer, in concluding that the evidence sufficed to rebut the cancer presumption recited by M.G.L. c. 32, § 94B. *See Oteri v. Weymouth Retirement Bd.*, Docket No. CR-09-255, Decision (Mass. Div. of Admin. Law App., Jan.

28, 2011).

In *McLean*, the surviving spouse of a retired municipal police officer brought an action in contract to recover an annuity pursuant to M.G.L. c. 32, § 89A, based upon the city's refusal to award her an annuity as the dependent of a public employee who died from injuries sustained while in the performance of his duties. The police officer had been retired for myocarditis (heart disease of undetermined origin) following a heart attack, pursuant to the "heart law presumption" applicable to paid fire or police department members recited by M.G.L. c. 32, § 94.[5] Two years after retiring, the police officer died of coronary occlusion (a constriction or obstruction of a coronary vessel or artery to the heart resulting in death to muscle tissue and cells). A medical panel found no evidence that the policeman had died as the result of an injury received in the performance of his duties as a member of the police department, but did not mention the heart law presumption. Based upon the panel's negative certificate as to work-related causation of the police officer's disabling myocarditis , the city refused to pay the requested annuity, also apparently without addressing the heart law presumption. On appeal from the Superior Court's award of the annuity requested by the firefighter's surviving spouse, the Supreme Judicial Court sustained exceptions to the judgment, and essentially remanded the matter for further action by the medical panel and the municipality. It held that the medical panel's certificate should have, but had not, indicated whether the policeman's death was caused by the same disease that caused his retirement, and whether there was competent evidence that the disease from which he died was not service-connected, as M.G.L. c. 32, § 94

[5]/ That presumption, added to Chapter 32 by the legislature in 1949, preceded, by 41 years, the firefighter cancer presumption provided by M.G.L. c. 32, § 94B.

required in order to rebut the heart law presumption. The Supreme Judicial Court held, as well, that these findings were required before the city denied or granted a Section 89A annuity to the police officer's surviving spouse. The requirement that the evidence of non-service related causation be "competent" was based upon the language of the heart law presumption recited by M.G.L. c. 32, § 94 requiring this type of evidence to rebut the presumption. The Supreme Judicial Court applied that standard to the annuity eligibility decision to be made in *McLean* under section 89A, even though section 89A itself was silent on this point. It did so because (1) a medical panel had been convened to evaluate the surviving spouse's annuity application (which section 89A did not require, but also did not preclude); and (2) the city had treated the medical panel's certificate as evidence material to whether the police officer's death was or was not service-related (albeit without considering the heart law presumption as evidence on that point), and, for that reason, was "subject to the effect of the presumption" recited by M.G.L. c. 32, § 94. *McLean*; 340 Mass. at 617, 166 N.E.2d at 222-23.

McLean is helpful here by analogy, even though the operative presumption arises under a different statute (M.G.L. c. 32. § 94B, rather than § 94), and even though the panel majority's opinion here supported a service-related cause for the disease in question, which was not the case in *McLean*.

Here, the medical panel's majority opinion was some evidence as to the medical issues raised by Mr. Judd's accidental disability retirement application and the M.G.L. c. 32, § 94B presumption on which it relied. As identified by the form certificate that the panel members had before them, those issues were: (1) whether Mr. Judd's diagnosed form of cancer was one which may in general result from exposure to heat, radiation, or a known or suspected carcinogen as identified by the

International Agency for Research on Cancer; (2) whether there were non-service connected accidents or hazards undergone which may have contributed to or resulted in the development of the cancerous condition; and, if so, (3) whether there was evidence that, although not irrebuttable, so predominated as to conclude that a uniquely predominant non-service connected influence on Mr. Judd's physical condition and/or nonservice connected accident or hazard caused his incapacity. (*See* Exhs. 4, 5 and 6.) The panel members' answers to those questions were to inform their opinion as to whether Mr. Judd's "incapacity was such as might be the natural and proximate cause of the personal injury sustained or hazard undergone on account of which retirement is claimed"—the liver cancer that, per M.G.L. c. 32, § 94B, was presumed to have been incurred in the line of his service as a firefighter. (*Id*.) Although the medical panel's affirmative majority opinion on this causation issue was not binding upon the board, the board was required to consider it as some evidence of the firefighter's service-related cancer causation. *See, e.g., Cobb v. State Bd. of Retirement*, Docket No. CR-14-367, Decision (Mass. Div. of Admin. Law App., Feb. 3, 2017).

I turn next to DALA's 2011 *Oteri* decision, which addressed whether the evidence of a non-service related cause of the firefighter's cancer in that case "preponderated," and therefore rebutted section 94B's presumption of service-related cancer causation.

The *Oteri* decision sustained the denial of a firefighter's accidental disability retirement application based upon evidence found sufficient to rebut the M.G.L. c. 32, § 94B cancer presumption. Administrative Magistrate Maria A. Imperato found that this evidence comprised "all the medical evidence in the record," including a majority negative medical panel certificate as to service-related causation. The medical records showed the firefighter's liver cancer "to have been

caused by cirrhosis of the liver resulting from hepatitis C virus infection," and that the most likely cause of this infection was non-service related—the application of the firefighter's tattoos and his history of blood infections. The record included no injury reports at all, leaving only the section 94B cancer presumption to support service-related cancer causation. Although *Oteri* did not say so specifically, the evidence of non-service related causation in that case was clearly entitled to greater weight, and for that reason both preponderated as to causation and sufficed to rebut the presumed service-related cause of the firefighter's cancer.

Oteri underscores that whether evidence of a non-service related cancer causation suffices to rebut the section 94B presumption is *sui generis*. In that case, the preponderating evidence included a majority negative medical panel opinion as to service-related cancer causation. There were also no notices of injury in the record to support the firefighter's claim that if the hepatitis C infection pathway was through blood-to-blood contact, the contact occurred during the performance of his duties.

3. Does the Evidence of Non-Service Related Cancer Causation Preponderate in this Case and Rebut the Statutory Cancer Presumption?

Per M.G.L. c. 32, §94B, "competing evidence" of a non-service related cause for the firefighter's cancer would have to preponderate over evidence of service-related causation to rebut the firefighter cancer presumption the statute provides. Stated another way, the fact that would have to be proved in order to rebut the section 94B cancer presumption is that Mr. Judd's liver cancer had a non-service related cause, either alcohol abuse (on which the board based its ADR denial) or

hemochromatosis (which the board's memorandum posits) that caused cirrhosis of the liver, thereby predisposing that organ to cancer, rather than an in-service cause such as carcinogen exposure during firefighting.

In addition to the section 94B presumption that Mr. Judd's liver cancer was suffered in the line of duty as a firefighter, the record includes evidence supporting the presumption's application, including the firefighter's multiple notices of injury regarding smoke and chemical inhalation while fighting fires. In contrast, the record in *Oteri* included no notices of injury. Also supporting the presumption's application are the undisputed carcinogenicity of substances that Mr. Judd likely inhaled during firefighting, and a majority medical panel opinion (by Dr. Liberman and Dr. Elfiky) that there was insufficient medical support for non-service related cancer causation on account of alcohol consumption, and that Mr. Judd's exposure to known carcinogens during firefighting was as likely to have caused his liver cancer than were non-service related causes. The evidence on which the board relies in contending that the Section 94B presumption was rebutted are various notations in the medical records regarding Mr. Judd's alcohol consumption, the finding that his hemochromatosis was genetic, and a minority medical panel opinion (by Dr. Lebovits) that Mr. Judd's liver cancer was more likely due to a non-service related cause (alcohol abuse and a related liver cirrhosis) than to his service-related exposure to carcinogens.

Meeting this evidentiary burden is problematic because proof of a cancer's specific etiology from among several potential causes is itself difficult, a point that Dr. Liberman emphasized in his response to the board's questions when he stated that the exact contributions of each toxin to which Mr. Judd was exposed during firefighting was impossible to quantify. (*See* Finding 7.) Presumably,

this was why the legislature added the presumption in the first place.

In requiring proof of a non-service related cause of cancer to rebut section 94B's presumption of a service-related cause, the legislature has also imposed a significant evidentiary burden on the retirement board, as well as an evidentiary standard that DALA must apply in an appeal such as this one. The statutory requirement is clear from Section 94B's plain language, however. The unambiguous language makes it unnecessary to glean the legislative intent underlying this evidentiary requirement. However, it is clear enough that while the legislature made the cancer presumption it added to the General Laws in M.G.L. c. 32, § 94B rebuttable, it also made the presumption rebuttal-resistant, more so than even the heart law presumption of M.G.L. c. 32, § 94, which requires a lesser quantum of evidence to rebut the presumptive service-related origin of disabling or fatal heart disease—"competent evidence," rather than the preponderating evidence, of a non-service related cause that section 94B requires.

The burden of rebutting the presumed service-related causation of Mr. Judd's liver cancer with preponderating evidence of a non-service related cause is not met here. The evidence of a non-service related cause simply does not preponderate, and does not rebut the presumption, per M.G.L. c. 32, § 94B, that Mr. Judd's liver cancer developed while he was serving as a paid firefighter.

a. No Preponderating Evidence of Alcohol-Related Cancer Causation

The record includes several references to Mr. Judd's consumption of alcohol, but it furnishes no medical support for the proposition that he abused it or that alcohol consumption caused a related liver cirrhosis and the liver cancer that he ultimately developed. For example:

(1) Mr. Judd's liver was observed to be cirrhotic in appearance when he had an MRI in April 2012 relative to abdominal pain. This MRI also showed a mass in the liver compatible with hepatocellular carcinoma. However, nowhere in the medical records is it stated definitively that the liver's cirrhotic appearance was alcohol-related. (Exh. 17: Massachusetts General Hospital Records, January 1, 2012–May 29, 2013, at 26: Liver Oncology Clinic Followup Report of Dr. Andrew Zhu and Dr. Zosia Piotrowska regarding Nov. 21, 2012 visit, Oncologic History section, first page, third bulleted paragraph.)

(2) During a visit to the Lahey Clinic on June 28, 2012 to discuss his biopsy-proven hepatoma in section 5 of his liver, Mr. Judd discussed the possibility of a liver transplant with Dr. William Lewis, and was told that he would need to be sober for six months to be an active liver transplant candidate. Dr. Lewis noted that "even without a biopsy he appears to have significant fibrosis or cirrhosis of the liver" based upon what the MRI showed, but he did not characterize the fibrosis or cirrhosis as alcohol-related. (*See* Exh. 16: Medical records of Lahey Clinic: Report of Dr. William Lewis re evaluation for hepatoma of biopsy-proven hepatoma in segment 5 of liver, dated June Jun. 29, 2012.)

(3) The operative report regarding Mr. Judd's cholecystectomy on October 25, 2012, following the microwave ablation of his liver tumor, includes a history stating (among other things) that Mr. Judd had "cirrhosis *presumably* on the basis of alcohol intake." (Exh. 2: Massachusetts General Hospital, Operative Report dated Oct. 25, 2012 by Dr. Kenneth K. Tanabe, at 1)(emphasis added.) The report does not refer to any diagnosis or test results confirming that the cirrhosis was actually related to alcohol consumption.

(4) During a liver oncology follow-up visit on January 22, 2013, Dr. Andrew X. Zhou and Dr. P. Peter Ghoroghchian noted, under "Oncologic History," that two years earlier (in 2011), Mr. Judd was "told he had 'abnormal liver function tests' and needed to reduce his drinking, which he did 'somewhat.'" They also noted Mr. Judd's statement to them that he had been drinking "[u]p to ten O'Douls per day recently, but stopped drinking in August 2012." The liver oncology followup note does not state affirmatively that Ms. Judd was abusing alcohol. Exh. 2: Treating Physician's Statement Pertaining to Member's Application for Disability Retirement; attached Massachusetts General Hospital, Liver Oncology Follow-up Note prepared by Dr. P. Peter Goroghchian and Dr. Andrew X. Zhu, regarding Mr. Judd's visit dated Jan. 22, 2013, at 2.)[6] However, whether or not Mr. Judd was, or had been, consuming alcohol, the January 22, 2013 liver oncology follow-up note does not state that Mr. Judd's liver cancer was caused by alcohol consumption, abuse or dependency.

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[6]/ The purpose of the notation in the liver oncology followup record of Mr. Judd's statement regarding his consumption of ten O'Doul's is unclear. It may have been no more than a recording of what Mr. Judd said to his treating physicians during the January 22, 2013 visit. The record does not state that the O'Doul's consumption was related to the etiology of Mr. Judd's liver cancer. None of the medical panel members identified this statement in particular as medically significant in determining the cancer's cause.

No such significance is properly read into Mr. Judd's statement. O'Doul's is a low alcohol beer that is approximately 0.5 percent ethanol alcohol by volume; in contrast, the ethanol alcohol content of light beer is approximately 4.0 percent by volume, and of regular beers 5.0 percent or more by volume. *See, e.g.*, https://www.soberrecovery.com/forums/alcoholism/97016-question-about-odouls.html . The total alcohol consumed in drinking ten O'Doul's is roughly the alcohol that is consumed in drinking a single beer. Drinking ten O'Doul's is therefore not necessarily indicative of alcohol dependency, although it is not necessarily indicative of sobriety either; to some alcoholics, the only evidence of sobriety is abstinence from alcoholic beverages altogether, even "low alcohol" ones. *Id*. What it does not do, in this case, is prove that alcohol consumption was the non-service related cause of Mr. Judd's liver cancer. Mr. Judd's statement to his treating physicians regarding his consumption of ten O'Doul's adds, therefore, little of medical consequence to evidence that does not show a non-service related cause of cancer causation preponderantly, and certainly not enough to make that evidence sufficient to rebut the section 94B presumption.

(5) The medical records do not mention a history of alcohol-related blackouts or withdrawal symptoms.

(6) There is no identification in the medical records of any blood test results that are indicative of, or even suggest, alcohol dependency disease (ALD). It is not clear from the medical records that any blood tests were ordered to determine the cause of Mr. Judd's liver cancer, rather than to confirm his condition of cancer beginning in April 2012 and his status subsequent to treatment in late August 2012.

(7) There is no medical record, and no opinion in the medical records by a physician who treated Mr. Judd, stating that he suffered from ALD, or that he was treated for that condition, or, more to the point, that his liver cancer had an alcohol-related etiology.

Dr. Lebovits's minority panel opinion that there was "ample evidence to support alcohol abuse and cirrhosis" does not furnish countervailing evidence that preponderates over the panel majority's opinion. His opinion was that what he considered to be Mr. Judd's "significant history" of "alcohol abuse and alcoholic cirrhosis" outweighed "any exposure he may have had during the course of his employment as a firefighter." (*See* Findings 9 and 13.) The opinion is not supported by any diagnoses, testing or laboratory results in the medical records, however. There is no other ground offered by the board, or apparent from the record, for giving greater weight to Dr. Lebovits's opinion than to the opinions of Drs. Liberman and Elfiky regarding the cause of Mr. Judd's liver cancer. In contrast, the panel majority's opinion—that the precise etiology of Mr. Judd's liver cancer cannot be quantified, and that his use of alcohol and other risk factors did not outweigh the presumption of cancer risk related to his work as a firefighter (*See* Findings 7, 8, 11 and 12)—was

grounded firmly upon the medical record, and also reflected current medical knowledge regarding the causal relationship between the cancers specified by M.G.L. c. 32, § 94B (among them digestive system cancers, which include liver cancer) and the exposure of firefighters who develop them to carcinogens while fighting fires.

b. No Preponderating Evidence of Hemochromatosis-Related Cancer Causation

The medical evidence of hemochromatosis is more definitive, and includes the results of genetic testing. (*See* Finding 18.) However, the medical records do not include a finding that Mr. Judd's genetic hemochromatosis was the cause of his liver cancer. Consequently, this non-service related etiology, too, is no more than a medical possibility.

Mr. Judd's liver unquestionably appeared cirrhotic on the 2012 MRIs. Cirrhosis of the liver has several possible etiologies—the leading causes are Hepatitis C and alcohol-related liver disease, followed by non-alcoholic fatty liver disease, and Hepatitis B. *See Cirrhosis of the Liver*, https://liverfoundation.org/for-patients/about-the-liver/diseases-of-the-liver/cirrhosis/. Hemochromatosis (excessive accumulation of iron in the body, which is deposited in organs that include the liver and pancreas) may result in liver cirrhosis, and this may predispose the liver to the development of liver cancer. *See Liver Disease*, http://liverdisease-portal.com/cirrhosis/cirrhosis-hemochromatosis/. Here, this is no more than a possibility. The medical records do not include a definitive finding that Mr. Judd's cirrhosis was related to Mr. Judd's genetic hemochromatosis. Although the medical records show that Mr. Judd's hemochromatosis was genetic, they do not show that the liver cancer he developed was the result of the natural progression of his hemochromatosis,

or the cirrhosis it may have caused (if that was indeed the case), rather than the result of his exposure to carcinogens during firefighting, as M.G.L. c. 32, § 94B presumes. In contrast, the record in *Oteri* established that the firefighter's liver cancer "was caused by cirrhosis of the liver resulting from hepatitis C virus infection" and that the most likely cause of this infection was non-service related—the application of tattoos and a history of blood infections, and the record was without any notices of injury to the firefighter. (*See* above at 18-19.)

Conclusion

Because the record shows no more than a possible relationship between Mr. Judd's hemochromatosis and cirrhotic liver and the cancer he developed, the evidence of a non-service related cause for Mr. Judd's cancer, whether alcohol abuse-based or based upon his hemochromatosis, is not preponderating, even with the panel minority opinion about non-service related causation added to the evidentiary mix. Certainly it cannot be said here, as was the case in *Oteri*, that all the medical opinion in the record (or even most of the medical records) establishes that the cancer at issue was non-service connected. In contrast with *Oteri*, the records in this case (all of which were presented to the medical panel members for their review) includes injury reports the firefighter filed regarding his smoke inhalation while fighting fires, as well as a report of exposure to leaking ammonia during a haz-mat response, and exposure to hazardous materials while responding to a laboratory fire. (*See* Finding 16.) Also in contrast with what the medical panel majority concluded in *Oteri*, the majority of the medical panel in this case found no support in the medical records for concluding that Mr. Judd's liver cancer had a non-service related cause.

There is no medical evidence that Mr. Judd's liver cancer was in fact caused by alcohol abuse (or even that he abused alcohol at all, as opposed to consuming alcohol to a non-abusing degree), or by alcohol-related cirrhosis, or by hemochromatosis and related cirrhosis. None of these amounts to anything more than a possible alternative non-service related cause of the cancer that Mr. Judd developed. None of these alternate causation possibilities amounts to evidence of a non-service related causation of the firefighter's hepatocellular cancer that suffices to overcome the presumption of service-related cancer causation. The statute requires a showing of such non-service related causation by a preponderance of the evidence, and not simply a showing of possible alternative causation. Even if the evidence of all alternative, non-service related cancer causation is considered together, it does not preponderate by weight; it remains, instead, a conglomeration of possible causes rather than predominating evidence that any of them preponderates over a service-related cause of Mr. Judd's liver cancer.

As medical panel oncologist Dr. Liberman noted, none of the several possible insults to Mr. Judd's liver, including exposure to carcinogens during firefighting, can be definitively singled out as causative of the cancer he developed to the exclusion of the others. However, this is precisely the evidentiary quandary that the section 94B cancer presumption rectifies, at least for firefighters who develop cancer and might otherwise be left unable to ever establish service-related causation, even though the research and literature support a connection between a firefighter's exposure to carcinogens on the job and the digestive, respiratory and other cancers he may develop subsequently, as Dr. Elfiky noted. For accidental disability retirement purposes, it is not necessary for a firefighter who develops cancer to present this proof if the M.G.L. c. 32, § Section 94B cancer presumption

applies, as it does here. The presumption is not rebutted here by a preponderance of the evidence that Mr. Judd's liver cancer had a non-service related cause.

Disposition

Based upon the above findings and discussion, the decision of the Cambridge Retirement Board denying Mr. Judd's accidental disability retirement application based upon disabling, service-connected liver cancer is reversed, and accidental disability retirement benefits based upon that disability are awarded to him posthumously.

SO ORDERED.

DIVISION OF ADMINISTRATIVE LAW APPEALS

Mark L. Silverstein
Administrative Magistrate

Dated: August 27, 2019

APPENDIX TO DECISION

LIST OF 18 STIPULATED EXHIBITS FILED JOINTLY BY THE PARTIES (All in Evidence)

Exh. 1. Member's Application for Disability Retirement filed by Mr. Judd with Cambridge Retirement System, dated Apr. 2, 2013.

Exh. 2. Treating Physician's Statement Pertaining to Member's Application for Disability Retirement signed by Dr. Andrew X. Zhu and dated Apr. 2, 2013.

Attachments:

Massachusetts General Hospital, Liver Oncology Follow-up Note prepared by Dr. P. Peter Goroghchian and Dr. Andrew X. Zhu, dated Jan. 23, 2013.

Massachusetts General Hospital, Operative Report prepared by Dr. Kenneth K. Tanabe re Mr. Judd's October 25, 2012 cholecystectomy, dated Oct, 25, 2012.

Exh. 3. Employer's Statement pertaining to Mr. Judd's Application for Disability Retirement, dated May 28, 2013.

Exh. 4. Medical Panel Certificate, Report dated December 12, 2013, and Addendum (clarification response) dated May 18, 2014 of Dr. Robert B. Liberman.

Exh. 5. Medical Panel Certificate, Report dated December 18, 2013, and Addendum (clarification response) dated May 13, 2014 of Dr. Mark Lebovits.

Exh. 6. Medical Panel Certificate, Report dated December 12, 2013, and Addendum (clarification response) dated May 14, 2014 of Dr. Aymen Elfiky.

Exh. 7. Cambridge Retirement Board's separate requests for clarification to Dr. Mark S. Lebovits (dated Apr. 14, 2014), to Dr. Robert B. Liberman (dated Apr. 9, 2014), and to Dr. Aymen Elfiky (dated Apr. 14, 2014).

Exh. 8. Cambridge Retirement Board's transmittal of background information to regional medical panel, undated, regarding Mr. Judd's accidental disability retirement application, including medical records through May 29, 2013.

Exh. 9. Public Employee Retirement Administration Commission (PERAC) approval , as of January 17, 2014, of Ms. Judd's accidental disability retirement application based upon disabling orthopedic injury, dated Mar. 13, 2014.

Exh. 10. Cambridge Retirement Board's Notice of Action (Denial) of Mr. Judd's accidental disability retirement application based upon disabling hepatocellular cancer, dated Aug. 5, 2014.

Exh. 11. Mr. Judd's appeal of decision of Cambridge Retirement Board denying request for accidental disability retirement, dated Aug. 14, 2014.

Exh. 12. Cambridge Fire Department employee injury reports filed by Mr. Judd, dated April 4, 1986–Aug. 13, 2012.

Mr. Judd's Medical Records Provided to the Medical Panel:

Exh. 13. Medical records of Dr. Laura Zucker (Family Practice Group. P.C.), dated Nov. 2012–Mar. 2013, with attached Mt. Auburn Hospital Radiology Reports, Nov. and Dec. 2012.

Exh. 14. Metrowest Medical Center Medical records (Dr. Shapur A. Ameri), dated May-June 2002.

Exh. 15. Medical records of Dr. David A. Roth, dated Sept.-Oct., 1999.

Exh. 16. Medical records of Lahey Clinic: Report of Dr. William Lewis re evaluation for hepatoma of biopsy-proven hepatoma in segment 5 of liver, dated June Jun. 29, 2012.

Exh. 17. Massachusetts General Hospital Records, January 1, 2012–May 29, 2013.

Exh. 18. Records of (a) Dr. Edward R. Wolpow re nerve conduction and electromyography studies dated Sept. 25, 2012; (b) Radiology at Arlington (Dr. George Cushing), re adhesive capsulitis, right shoulder, dated Dec. 10, 2012); (c) Mount Auburn Hospital Radiology arthrocentesis to evaluate adhesive capsulitis, right shoulder, dated Dec. 20, 2012; and re CT scan of abdomen and pelvis performed Mar. 16, 2013; (d) Mount Auburn Hospital Department of Cytology, cytological interpretation of fine core needle biopsy of the right lobe liver, dated May 11, 2012; Immunology report re hemochromatosis performed May 16, 2013; and laboratory reports dated May 30, 2013; (e) Mt. Auburn Hospital Radiology re right shoulder x-ray, Sept. 17, 2012; (f) Mt. Auburn Hospital hematology, chemistry, immunology reports, Dec. 2012, Jan. 2013. Mar. 2013.