PUBLISHED

UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

No. 16-4393

UNITED STATES OF AMERICA,

Plaintiff - Appellee,

v.

RAFAEL CHIKVASHVILI,

Defendant - Appellant.

Appeal from the United States District Court for the District of Maryland, at Baltimore. James K. Bredar, District Judge. (1:14-cr-00423-JKB-1)

Argued: May 11, 2017 Decided: June 9, 2017

Before WILKINSON, KING, and WYNN, Circuit Judges.

Affirmed by published opinion. Judge Wilkinson wrote the opinion, in which Judge King and Judge Wynn joined.

ARGUED: Booth Marcus Ripke, NATHANS & BIDDLE, LLP, Baltimore, Maryland, for Appellant. Leo Joseph Wise, OFFICE OF THE UNITED STATES ATTORNEY, Baltimore, Maryland, for Appellee. **ON BRIEF:** Robert W. Biddle, NATHANS & BIDDLE, LLP, Baltimore, Maryland, for Appellant. Rod J. Rosenstein, United States Attorney, P. Michael Cunningham, Assistant United States Attorney, OFFICE OF THE UNITED STATES ATTORNEY, Baltimore, Maryland, for Appellee.

WILKINSON, Circuit Judge:

Rafael Chikvashvili, the former CEO of diagnostic imaging company Alpha Diagnostics, was charged with two counts of healthcare fraud resulting in death under 18 U.S.C. § 1347. At trial, the government alleged that Chikvashvili directed unqualified radiologic technicians to interpret x-rays and billed Medicare as though licensed physicians had performed the work. The government further contended that two patients died because their x-rays were misread by Alpha technicians. A jury convicted Chikvashvili on both counts.

Chikvashvili seeks acquittal on appeal. For criminal liability to attach under Section 1347, he argues, the false billing—as opposed to the fraudulent scheme as a whole—must be the "but-for" cause of death. Because the fraudulent billing did not cause the deaths of the two patients, Chikvashvili concludes, this court ought to vacate the "resulting in death" convictions. This same reasoning underlies his appeal of the district court's denial of his motion for acquittal and his challenge to the indictment and jury instructions. He also appeals the admission of expert testimony on causation. We reject his various challenges and affirm the judgment.

I.

Chikvashvili founded Alpha Diagnostics and served as the company's CEO. Alpha provided portable, on-site diagnostic imaging services such as x-rays, sonograms, and electrocardiograms. An Alpha technician would travel to the patient's location, perform the imaging requested by the patient's attending physician, and transmit the

results to a qualified doctor for interpretation. Alpha's revenue came from its patients and their insurers, including Medicare and Medicaid.

The government alleges that Chikvashvili supervised an elaborate, longstanding conspiracy to cheat Medicare through an assortment of fraudulent practices. Three former employees, all of whom worked as technicians, testified for the government. According to these witnesses, Alpha routinely requested reimbursement for two x-ray images when it had taken only one. Testimony also indicated that Alpha regularly charged excessive transportation costs, pretending that technicians had made separate trips to serve different patients at a single facility despite assisting multiple patients at a time. These accounts were corroborated by another former employee who oversaw billing and office administration. This employee also asserted that Alpha changed the attending physician's diagnosis or symptom codes so that the service would qualify for Medicare reimbursement.

This appeal concerns an even more dangerous form of healthcare fraud. According to Chikvashvili's former technicians, Chikvashvili directed them to interpret scans, prepare reports, and submit the results to attending physicians while passing off their handiwork as that of actual, board-certified radiologists and cardiologists. For some reports, technicians signed with a doctor's name; for others, Chikvashvili placed cut-outs of physicians' signatures on the documents. Alpha would then submit claims for reimbursement to Medicare as though qualified physicians had examined the images. The fraud was pervasive. One of the three technicians claimed that Chikvashvili directed them to read as many scans as possible and that they were responsible for analyzing the vast

majority of Alpha's diagnostic images. Chikvashvili, for his part, kept a detailed log of Alpha's services. The technicians reported that he denoted fraudulent, in-house reads by placing a "minus" sign next to the initials of the purported interpreting physician.

In many instances, the technicians made mistakes in interpreting the images. And on two occasions, a patient died after an Alpha technician overlooked the congestive heart failure documented in her x-ray. One patient, M.V.K., lived in a nursing home and had a chest x-ray taken shortly before her death. Alpha performed a chest x-ray of another patient, D.M.C., prior to D.M.C.'s elective surgery. D.M.C. bled profusely following the surgery and died shortly thereafter. The government's expert witnesses—Dr. Sanjeev Bhalla and Dr. Philip Buescher—opined that Alpha's reports on M.V.K and D.M.C. failed to diagnose congestive heart failure in both patients.

Dr. Buescher also offered an opinion on causation. He testified that Alpha's misreads of the x-rays were the but-for causes of death for M.V.K. and D.M.C. In M.V.K's case, Dr. Buescher explained, diagnosing her congestive heart failure would have led to treatment at a hospital, which would have alleviated her condition. And diagnosing D.M.C.'s condition would have led her attending physician to postpone her elective surgery until her heart condition had been addressed. In Dr. Buescher's opinion, neither patient would have died if their x-rays had been interpreted accurately.

The deaths of M.V.K. and D.M.C. formed the respective bases for Counts 2 and 3 of the indictment, which charged Chikvashvili with healthcare fraud resulting in death under 18 U.S.C. § 1347. Chikvashvili was also charged with conspiracy to commit healthcare fraud (Count 1); healthcare fraud (Counts 4-12); wire fraud (Counts 13-20);

false statements relating to healthcare matters (Counts 21-31); and aggravated identity theft (Counts 32-33).

Chikvashvili lodged a number of unsuccessful objections to the proceedings below. First, before trial, Chikvashvili moved to exclude Dr. Buescher's expert testimony on causation with respect to Counts 2 and 3. The district court, however, ruled that Dr. Buescher's testimony was admissible. After the government closed its evidence, Chikvashvili moved for a judgment of acquittal under Rule 29 of the Federal Rules of Criminal Procedure, arguing that the evidence was legally insufficient for a conviction on any count. The district court denied the motion. Finally, Chikvashvili objected to two summation paragraphs in the jury instruction on Counts 2 and 3 but was again rebuffed.

A jury convicted Chikvashvili on all counts, and he was sentenced to a total of 120 months of imprisonment.

After Chikvashvili renewed his Rule 29 motion for acquittal, the district court rejected his request once again. The court noted that the government had presented "a mountain of evidence against Chikvashvili" in general as well as "ample evidence" that "the health care fraud orchestrated and carried on by Chikvashvili was the but-for cause of M.V.K.'s and D.M[.]C.'s deaths." J.A. 964-65.

II.

We begin with the proper reading of 18 U.S.C. § 1347. We hold that the execution of a fraudulent scheme—not merely the submission of a false claim—may give rise to liability under Section 1347 when execution of the scheme results in death. In light of this holding, we conclude that there was sufficient evidence to sustain Chikvashvili's

convictions on Counts 2 and 3. We further hold that the district court did not err in instructing the jury on those counts. Finally, we affirm the district court's decision to admit the expert testimony of Dr. Buescher on causation.

A.

Congress established the crime of healthcare fraud in 18 U.S.C. § 1347:

> Whoever knowingly and willfully executes, or attempts to execute, a scheme or artifice--
>
> (1) to defraud any health care benefit program; or
>
> (2) to obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any health care benefit program,
>
> in connection with the delivery of or payment for health care benefits, items, or services, shall be fined under this title or imprisoned not more than 10 years, or both.

18 U.S.C. § 1347(a). In addition, Congress authorized the imposition of a life sentence where "the violation results in death." *Id.*

Congress, of course, has the ultimate authority to determine what are elements of an offense and what are sentencing factors and to demarcate the boundary between the two. It was conceivable that "result[ing] in death" would be in the nature of a sentencing enhancement, but that is not at all how the statute is constructed. Instead, "result[ing] in death" for purposes of Section 1347 must be found by a jury as with any element beyond a reasonable doubt.

Chikvashvili argues that a jury assessing whether a "violation result[ed] in death" may consider only whether the submission of a fraudulent claim for reimbursement caused the death in question. On his view, it is "legally insufficient" for purposes of establishing criminal liability to prove "that a death happened in the course of a broader

conspiracy or scheme to commit health care fraud." Br. of Appellant at 23. As a result, Chikvashvili suggests, he is entitled to acquittal on Counts 2 and 3 as a matter of law because Alpha's submission of false claims did not cause the deaths of M.V.K. and D.M.C.

The unambiguous statutory text, however, refutes Chikvashvili's cramped interpretation of Section 1347. To violate that provision, one must "knowingly and willfully execut[e] . . . *a scheme or artifice*" to defraud a healthcare benefit program. 18 U.S.C. § 1347(a) (emphasis added). Further, this "scheme or artifice" must be connected to either "*the delivery of* or payment for health care benefits, items, or services." *Id.* (emphasis added). When this "violation"—a fraudulent healthcare scheme taken as a whole—"results in death," the perpetrator may be punished by life imprisonment. *Id.*

The statute, then, does not cabin the term "scheme or artifice" to the formal act of requesting reimbursement for some false or deceptive charge. While the "scheme or artifice" culminates in the submission of a fraudulent claim, it is not restricted to that event. This makes sense. As the government points out, Chikvashvili's construction of Section 1347 would eviscerate the statute: filing a claim with an insurer will seldom if ever cause someone's death. Instead, the proper focus of the causation inquiry is the larger fraudulent scheme and, within that scheme, "the delivery of . . . health care" in particular. 18 U.S.C. § 1347(a).

In his effort to isolate the submission of a false claim from the rest of the fraud, Chikvashvili invokes the inapposite distinction between the execution of a scheme to defraud and acts in furtherance of that scheme. He suggests that submitting the claim

represents the execution of the scheme and that the events leading to submission are mere acts in furtherance of the scheme. He cites two cases from our sister circuits to bolster his conclusion that "acts in furtherance of a scheme are not violations of the statute." Br. of Appellant at 17 (citing *United States v. Awad*, 551 F.3d 930 (9th Cir. 2009); *United States v. Hickman*, 331 F.3d 439 (5th Cir. 2003)).

But the authorities on which Chikvashvili relies did not concern the question presented here. The defendant in *Awad* was charged with 24 counts of healthcare fraud, which corresponded to his submission of 24 fraudulent claims. *Awad*, 551 F.3d at 937. The defendant argued that the counts were multiplicitous because they charged "24 acts in furtherance of a single scheme, rather than 24 separate executions of a scheme to defraud." *Id.* The Ninth Circuit rejected this theory, characterizing each claim as a distinct scheme to defraud rather than an act in furtherance of a single scheme. *Id.* at 938. The court concluded that the events surrounding each claim were separately chargeable. *Id.* The Fifth Circuit held the same in *Hickman*. *See* 331 F.3d at 446. Because Chikvashvili does not claim that Counts 2 and 3 are multiplicitous, *Awad* and *Hickman*—and their distinction between a scheme's execution and its constituent acts—are not relevant here.

In this case, the government's theory of fraud with respect to Counts 2 and 3 encompassed the use of a technician to analyze diagnostic images instead of qualified personnel; the misrepresentation that a physician had performed the work; the resulting x-ray misread; and the deceitful claim for reimbursement. This "scheme or artifice" may

serve as the predicate violation of Section 1347 in a prosecution for healthcare fraud resulting in death.

B.

Chikvashvili next argues that there was insufficient evidence to support his convictions on Counts 2 and 3. According to Chikvashvili, the government fell short on Counts 2 and 3 because of the way those counts were charged in the indictment. Chikvashvili claims that the indictment charged him with violating Section 1347 "by submitting two claims to Medicare for payment." Br. of Appellant at 18. He argues that the government failed to prove that the deaths of M.V.K. and D.M.C. were caused by his fraudulent billing and concludes that he is therefore entitled to acquittal.

The actual language of Counts 2 and 3, however, belies Chikvashvili's characterization of the indictment. To begin, both counts incorporate portions of the conspiracy count (Count 1) that describe Chikvashvili's role in the fraudulent scheme as well as the manner and means by which the scheme was carried out. Counts 2 and 3 then charge the following:

> Alpha Diagnostics personnel took a chest X-ray of a patient . . . . The image was not interpreted by a qualified radiologist. Instead, a non-physician Alpha employee attempted to interpret the image and reported the image as negative for any chronic conditions. In fact, the image revealed congestive heart failure but the Alpha employee failed to detect it.

J.A. 624 (Count 2); *see* J.A. 626 (Count 3) (noting that "the image revealed mild congestive heart failure"). Next, the counts explain that M.V.K. and D.M.C. would have been treated differently had their heart failures been identified and would not have died in the circumstances they did. Both counts charge that the failure to detect and report "the

congestive heart failure shown on the chest X-ray resulted in the death of [the patient]." J.A. 624 (Count 2); J.A. 626-27 (Count 3). Counts 2 and 3 conclude that Chikvashvili

> did knowingly and willfully execute and attempt to execute the scheme and artifice to defraud Medicare, and to obtain by means of materially false and fraudulent pretenses, representations, and promises, money and property owned by, and under the custody and control of Medicare, a health care benefit program under 18 U.S.C. § 24(b), in connection with the delivery of and payment for health care benefits, items and services in that the defendant submitted and caused the submission of . . . a false and fraudulent Medicare claim . . . representing that Alpha Diagnostics had provided qualifying medical imaging services to [the patient], and that the violation resulted in [the patient's] death.

J.A. 625 (Count 2); J.A. 627 (Count 3).

The indictment thus plainly alleges that Chikvashvili directed unqualified personnel to analyze x-rays for purposes of defrauding Medicare, that the technicians overlooked serious heart conditions, and that the failure to identify these conditions resulted in the deaths of M.V.K. and D.M.C. There is simply no merit to Chikvashvili's contention that Counts 2 and 3 characterize the predicate violations of Section 1347 as the mere submission of the fraudulent claims. Chikvashvili was charged with directing a larger fraudulent scheme that led to the deaths of two patients.

Chikvashvili dismisses the description of the fraudulent scheme in Counts 2 and 3 as part of the "narrative portion" of the counts, which he distinguishes from their "operative" final paragraphs. Br. of Appellant at 19. According to Chikvashvili, he was charged only with the following act: "[T]he defendant submitted and caused the submission of . . . a false and fraudulent Medicare claim, representing that Alpha Diagnostics had provided qualifying medical imaging services to [the patient], and that

the violation resulted in [the patient's] death." *See* Reply Br. of Appellant at 5-6 (quoting Counts 2 and 3).

But Chikvashvili offers no sound reason to recognize a narrative-operative distinction in the indictment, and he utterly fails to support his theory that the "narrative" components of a count may not clarify the scope of the charge. Indeed, this latter assertion is refuted by the introductions of Counts 2 and 3, which state: "The Grand Jury for the District of Maryland further *charges* that . . . ." J.A. 624 (Count 2) (emphasis added); J.A. 626 (Count 3) (same). Counts 2 and 3 then specify the exact charges against Chikvashvili and culminate in the identification of the precise statute—Section 1347—that Chikvashvili's conduct violated.

C.

Chikvashvili also challenges the jury instructions on Counts 2 and 3. In evaluating jury instructions, we review "the entire jury charge to determine whether the jury was properly instructed on the elements of the offenses." *United States v. Herder*, 594 F.3d 352, 359 (4th Cir. 2010). In other words, we must determine "whether, taken as a whole, the instruction fairly states the controlling law." *United States v. Cobb*, 905 F.2d 784, 789 (4th Cir. 1990).

Chikvashvili's argument against the jury instructions on Counts 2 and 3 rests on the same erroneous interpretation of the indictment that we have earlier rejected. He challenges two paragraphs in particular, which summarized the charges contained in Counts 2 and 3:

> [A]s to Count 2, the indictment alleges the following: That the chest x-ray taken of M.V.K. on April 17, 2012, was not interpreted by a qualified radiologist; that instead, a non-physician Alpha Diagnostics employee attempted to interpret it but failed to detect M.V.K.'s congestive heart failure; that because M.V.K.'s image was not properly read, she remained in a rehabilitative nursing home rather than being transferred, according to standard medical practice, to an acute care facility; that M.V.K. died four days later on April 21, 2012; and that the failure to identify M.V.K.'s congestive heart failure resulted in her death at that time.

J.A. 917. The paragraph on Count 3 recounts D.M.C.'s story in the same fashion.

According to Chikvashvili, these summaries "improperly over-emphasized a factual theory that could not support a conviction of Counts 2 and 3 as those counts were charged" and thus "constructively amend[ed]" the indictment "by broadening the basis for which the defendant could be convicted." Br. of Appellant at 41. And a constructive amendment, he observes, "destroy[s] the defendant's substantial right to be tried only on charges presented in an indictment returned by a grand jury." *United States v. Floresca*, 38 F.3d 706, 712 (4th Cir. 1994) (quoting *Stirone v. United States*, 361 U.S. 212, 217 (1960)) (emphasis omitted).

There was no constructive amendment here. The paragraphs challenged here conform perfectly to the charges in Counts 2 and 3. As noted, those counts charged Chikvashvili with executing a scheme that encompassed the fraudulent analysis of diagnostic images by technicians, the mistaken interpretations of M.V.K.'s and D.M.C.'s x-rays, the submission of false claims for reimbursement, and the deaths that resulted from this whole course of action. The portions of the instructions to which Chikvashvili now objects simply recapped these charges. Moreover, Chikvashvili knew full well what

he was charged with and what he needed to do to defend against those charges. The district court did not err in instructing the jury as to the charges in Counts 2 and 3.

D.

Finally, Chikvashvili argues that the district court erred in admitting Dr. Buescher's expert opinion on causation for Counts 2 and 3. In particular, Chikvashvili contends that Rule 702 of the Federal Rules of Evidence barred the opinion because it was not relevant, not based on sufficient facts and data, and not a reliable application of Dr. Buescher's methodology to the facts at hand.

We review a district court's ruling on expert testimony for abuse of discretion. *United States v. Johnson*, 617 F.3d 286, 292 (4th Cir. 2010). An abuse of discretion occurs where a decision "is guided by erroneous legal principles . . . or rests upon a clearly erroneous factual finding." *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 261 (4th Cir. 1999).

Dr. Buescher concluded that the x-ray misreads were the but-for causes of death for M.V.K. and D.M.C. In preparation for his testimony, he reviewed their medical records and x-rays. His testimony on Counts 2 and 3 essentially consisted of two parts. First, he explained that standard medical procedures would have averted the deaths of each patient had their x-rays been properly analyzed and their congestive heart failures detected. Second, he employed a differential diagnosis methodology to rule out other potential causes of death.

If M.V.K.'s condition had been identified, Dr. Buescher testified, she would have been hospitalized instead of remaining at her nursing home and treatment would have

remedied her heart failure. Dr. Buescher also excluded other potential causes. M.V.K.'s death certificate attributed her death to chronic obstructive pulmonary disease (COPD). But the physician who completed the certificate did not have access to M.V.K.'s x-ray and instead relied only on Alpha's inaccurate report. Dr. Buescher explained that COPD was inconsistent with M.V.K.'s medical records and the circumstances surrounding her death: COPD causes a prolonged death due to the gradual loss of pulmonary function, but M.V.K. died suddenly. Dr. Buescher's diagnosis comported with the testimony of M.V.K.'s daughter on M.V.K.'s relatively normal functioning prior to her death.

Dr. Buescher testified that D.M.C.'s elective surgery would have been postponed if her attending physician had known that she was experiencing congestive heart failure. D.M.C.'s attending physician corroborated this opinion, testifying that he would not have cleared her for surgery. Dr. Buescher opined that D.M.C.'s congestive heart failure caused her to bleed excessively following the surgery and ultimately resulted in the failure of other organs. He ruled out sepsis, the cause of death recorded on the death certificate, based on D.M.C.'s medical records and lab tests performed prior to her death.

Under Rule 702, a qualified expert may offer an opinion if four conditions are satisfied:

> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
> (b) the testimony is based on sufficient facts or data;
> (c) the testimony is the product of reliable principles and methods; and
> (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

Chikvashvili first argues that Rule 702(a) blocks Dr. Buescher's testimony. He claims that any opinion on the medical causes of death for M.V.K. and D.M.C. is not relevant because the jury's causation inquiry concerned only the billing fraud, not the x-ray misreads. We once again reject this mischaracterization of the indictment. Dr. Buescher's testimony assisted the jury in determining whether Chikvashvili's fraud "resulted in death" under Section 1347.

Next, Chikvashvili claims that Dr. Buescher's analysis on other potential causes of death was not based on sufficient facts or data as required by Rule 702(b). Dr. Buescher employed a differential diagnosis methodology, which is "a standard scientific technique of identifying the cause of a medical problem by eliminating the likely causes until the most probable one is isolated." *Westberry*, 178 F.3d at 262. This court has explained that "[a] reliable differential diagnosis typically, though not invariably, is performed after 'physical examinations, the taking of medical histories, and the review of clinical tests, including laboratory tests.'" *Id.* (quoting *Kannankeril v. Terminix Int'l, Inc.*, 128 F.3d 802, 807 (3d Cir. 1997). Although Dr. Buescher did not conduct a physical examination of M.V.K. or D.M.C., he testified that he considered their x-rays and medical histories in developing his opinion. Further, he drew out the connection between these sources and his opinion for the jury, explaining why these materials supported his conclusion. There is little merit to Chikvashvili's suggestion that Dr. Buescher's testimony was not based on sufficient facts and data.

Finally, Chikvashvili objects to the manner in which Dr. Buescher applied the differential diagnosis methodology. In particular, Chikvashvili complains that Dr.

Buescher did not adequately consider and exclude other reasons why M.V.K. and D.M.C. died. A differential diagnosis that "fails to take serious account of other potential causes may be so lacking that it cannot provide a reliable basis for an opinion on causation." *Id.* at 265. But a court should not exclude an expert's testimony "because he or she has failed to rule out *every* possible alternative cause" of a medical event. *Id.* (quoting *Heller v. Shaw Indus., Inc.*, 167 F.3d 146, 156 (3d Cir. 1999)) (emphasis added). It is enough to eliminate potential causes "until reaching one that cannot be ruled out or determining which of those that cannot be excluded is the most likely." *Id.* at 262. Any "alternative causes suggested by a defendant 'affect the weight that the jury should give the expert's testimony and not the admissibility of that testimony,' unless the expert can offer '*no* explanation for why she has concluded [that an alternative cause] was not the sole cause.'" *Id.* at 265 (quoting *Heller*, 167 F.3d at 156-57) (citations omitted).

The above framework leaves the trial court some leeway in assessing the adequacy of differential diagnosis. Here, as noted earlier, Dr. Buescher considered and ruled out other potential causes for the deaths of M.V.K. and D.M.C., including the conditions listed on their death certificates. He elaborated on the reasons why the medical evidence supported his opinion. Chikvashvili's objections to his testimony go to weight, not admissibility. The district court did not err, let alone abuse its discretion, in admitting his opinion on causation.

III.

Insurers are not the only victims of fraudulent billing schemes, and medical fraud can do more than drain our healthcare system of badly needed funds. As Chikvashvili's

story illustrates, deceit and falsehood in the delivery of healthcare can pose a real danger to the patient victims of fraud, whose very lives may be put at risk by the perpetrator's avarice. To guard against these hazards, Congress criminalized healthcare fraud and authorized steep penalties where the fraud results in death. But Chikvashvili's confinement of Section 1347 to mere acts of paper filings ignores both the language of the statute and the real-world consequences of devious schemes and artifices that Congress had in mind. The prosecution offered evidence sufficient for the jury to conclude that Chikvashvili's fraud was the but-for cause of death for the patients in Counts 2 and 3. We can discern no error in the district court's jury instructions or its decision to admit Dr. Buescher's testimony. The judgment is in all respects

AFFIRMED.