

**IN THE UNITED STATES COURT OF APPEALS
FOR THE FIFTH CIRCUIT**

United States Court of Appeals
Fifth Circuit

FILED

March 27, 2017

Lyle W. Cayce
Clerk

No. 15-20641

MARK MCMANAWAY; DAVID RANCOURT; BRENT LASHER; JODY
AISTROP; WILLIAM BICKELL, et al,

Plaintiffs - Appellants

v.

KBR, INCORPORATED; KELLOGG BROWN & ROOT SERVICES,
INCORPORATED; KBR TECHNICAL SERVICES, INCORPORATED;
OVERSEAS ADMINISTRATION SERVICES, INCORPORATED; SERVICE
EMPLOYEES INTERNATIONAL, INCORPORATED; HALLIBURTON
COMPANY; HALLIBURTON ENERGY SERVICES, INCORPORATED,

Defendants - Appellees

ROCKY BIXBY; LAWRENCE ROBERTA; SCOTT ASHBY; CHARLES
ELLIS; MATTHEW HADLEY, et al,

Plaintiffs - Appellants

v.

KBR, INCORPORATED; KELLOGG BROWN & ROOT SERVICES,
INCORPORATED; KBR TECHNICAL SERVICES, INCORPORATED;
OVERSEAS ADMINISTRATION SERVICES, INCORPORATED; SERVICE
EMPLOYEES INTERNATIONAL, INCORPORATED,

Defendants - Appellees

No. 15-20641

Appeal from the United States District Court
for the Southern District of Texas

Before STEWART, Chief Judge, and SMITH and DENNIS, Circuit Judges.

JAMES L. DENNIS, Circuit Judge:

This toxic tort case presents the question of whether Plaintiffs' injuries were caused by the alleged hexavalent chromium contamination at an industrial water injection facility in Iraq. Plaintiffs are former American and British soldiers who were assigned to protect employees at the facility. Defendants, KBR, Incorporated and affiliated entities (KBR),¹ were tasked with restoring the facility. Plaintiffs claim that KBR did not responsibly handle the contamination at the facility, leading Plaintiffs to suffer injuries stemming from hexavalent chromium exposure. The district court granted KBR's motion for summary judgment dismissing Plaintiffs' claims because of their inability to prove that hexavalent chromium caused their injuries. On appeal, Plaintiffs argue that they adduced sufficient evidence of causation to survive summary judgment. KBR argues that resolution of this case necessarily calls into question non-justiciable military decisions and that Plaintiffs' claims are therefore barred by the political question doctrine. For the reasons discussed below, we conclude that Plaintiffs' claims are justiciable, but we AFFIRM the district court's summary judgment.²

¹ Plaintiffs brought claims against KBR and its affiliates, and against Halliburton and its affiliates. However, Plaintiffs' claims against the Halliburton defendants were dismissed, and Plaintiffs have not appealed those dismissals.

² KBR also argues that this court should extend the Federal Tort Claims Act's combatant-activities exception to shield government contractors from liability when they are involved in activities connected to the military's strategic objectives. Unlike complete preemption, which is a jurisdictional issue, the preemption raised by KBR is only an

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I

In March 2003, the United States Army Corps of Engineers (USACE) hired KBR to help restore Iraq's oil infrastructure following the United States' invasion as part of Project Restore Iraqi Oil (Project RIO). Pursuant to Task Order 3 (part of KBR's contract with USACE) KBR was to begin work on a facility after USACE determined conditions were "benign." Benign conditions meant, among other things, that the site was "cleared of all enemy forces" and "environmental hazards" including nuclear, biological, chemical, and industrial hazards. USACE did not perform an environmental assessment of Qarmat Ali, a water injection facility that KBR was tasked with restoring, and it is unclear whether USACE declared conditions there benign. Nonetheless, USACE (specifically, Task Force RIO) authorized KBR to start work at Qarmat Ali on May 13, 2003, and KBR began work later that month. Plaintiffs are current or former members of the Army National Guard or the British Royal Airforce who provided military protection for KBR at Qarmat Ali.

The company that operated Qarmat Ali prior to KBR's arrival onsite used sodium dichromate, an anti-corrosive agent and hexavalent chromium compound, when injecting water into oil reservoirs for the purpose of forcing oil to the surface. The use of sodium dichromate at Qarmat Ali, particularly the improper storage of the substance, led to air and soil contamination. Plaintiffs contend that they suffered injuries as a result of their exposure to sodium dichromate, a known carcinogen and irritant, while working at Qarmat Ali.

affirmative defense. *See Spears Mktg., Inc. v. BancorpSouth Bank*, 844 F.3d 464, 467 n.3 (5th Cir. 2016); *Harris v. Kellogg Brown & Root Servs., Inc.*, 724 F.3d 458, 463 (3d Cir. 2013) ("Absent complete preemption, whether a plaintiff's claims are preempted relates to the merits."). Because we affirm the district court's grant of summary judgment, we do not reach KBR's preemption argument.

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In the district court, Plaintiffs adduced evidence that they were exposed to sodium dichromate. For example, they submitted a Royal Airforce report concluding that “operational activity would suggest” that soldiers working at Qarmat Ali were exposed to sodium dichromate, although the extent of the exposure could not “be satisfactorily quantified.” Plaintiffs also submitted a 2008 National Guard memorandum concluding that soldiers at Qarmat Ali “had a high potential for direct exposure,” and an October 2003 report from the Army Center for Health Promotion and Preventive Medicine, concluding that before containment of the chemical, “chromium concentrations exceeded (military) health risk screening values,” and exposure “[p]robably occurred to some degree prior to containment.” Moreover, August 2003 urine and blood sampling of twenty-seven KBR employees who worked at Qarmat Ali showed that four of the tested employees had higher-than-normal levels of chromium in their urine and twenty-three of the tested employees had higher-than-normal levels of chromium in their blood.

Plaintiffs contend that exposure to sodium dichromate was deleterious to their health, both during and after their service at Qarmat Ali. Plaintiff Jody Aistrop observed that “[e]verybody” in his company complained of nosebleeds and rashes and that he experienced such symptoms, as well as gastrointestinal distress. Plaintiff Russell Powell, a medic, observed that he and other soldiers experienced “intense” gastrointestinal problems. Plaintiff Russell Kimberling developed headaches, respiratory problems, diarrhea, skin rashes, and a septal hole. In 2009, Lieutenant Colonel James Gentry died of lung cancer. The Army deemed his death to be “In Line of Duty for Exposure to Sodium Dichromate between June – September 2003.”

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In 2010, a group of plaintiffs filed suit in the Southern District of Texas,³ alleging negligence, gross negligence, fraud, and intentional infliction of emotional distress. Plaintiffs claimed that KBR was aware of the sodium dichromate contamination at Qarmat Ali and failed to take appropriate steps to reduce the risk of harm to the soldiers, to inform the U.S. or British military, or to warn the soldiers who were exposed to the contamination. Plaintiffs claimed that KBR's tortious actions caused them to suffer, among other ailments, nose bleeds, skin lesions, physical pain, emotional distress, and death.

In the district court, KBR filed a motion to dismiss on the grounds that the case presented a non-justiciable political question and that Plaintiffs' claims were preempted by federal common law. The court denied this motion.⁴ KBR also moved for summary judgment claiming, inter alia, that Plaintiffs could not establish that sodium dichromate caused their injuries. The court granted KBR's motion for summary judgment, dismissing Plaintiffs' claims on causation grounds and, separately, granted KBR's motion for summary judgment, dismissing individual plaintiff Lieutenant Colonel James Gentry's

³ A related case brought by Oregon National Guardsmen who worked at Qarmat Ali went to trial in the District of Oregon, resulting in a jury verdict against KBR. The verdict was vacated on jurisdictional grounds. *See Bixby v. KBR, Inc.*, 603 F. App'x 605 (9th Cir. 2015). The Oregon case was then transferred to the Southern District of Texas and consolidated with the Texas case on September 25, 2015.

⁴ The district court certified its ruling for interlocutory appeal, and this court granted KBR leave to appeal. After hearing oral argument, however, a panel of this court dismissed the appeal as improvidently granted. *McManaway v. KBR, Inc.*, No. 12-20763, 2013 WL 8359992 (5th Cir. Nov. 7, 2013). KBR sought rehearing en banc, which was denied. *See McManaway v. KBR, Inc.*, 554 F. App'x 347 (5th Cir. 2014).

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claims on similar grounds. The court entered judgment in favor of KBR. Plaintiffs timely appealed.⁵

II

We review a district court’s summary judgment decision de novo. *Davis v. Fernandez*, 798 F.3d 290, 292 (5th Cir. 2015). Summary judgment is appropriate if “there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” FED. R. CIV. P. 56(a). A genuine issue of material fact exists “if the evidence is such that a reasonable jury could return a verdict for the nonmoving party.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). When reviewing a summary judgment decision, we view all facts in the light most favorable to the non-moving party. *See Tolan v. Cotton*, 134 S. Ct. 1861, 1863 (2014). It is not the role of the court to make credibility determinations, or to weigh evidence when ruling on a motion for summary judgment. *See Anderson*, 477 U.S. at 255. However, in reviewing expert opinion evidence, “we look to the basis of the expert’s opinion, and not the bare opinion alone.” *Wackman v. Rubsamen*, 602 F.3d 391, 400 (5th Cir. 2010) (quoting *Guile v. United States*, 422 F.3d 221, 227 (5th Cir. 2005)). “A claim cannot stand or fall on the mere *ipse dixit* of a credentialed witness.” *Guile*, 422 F.3d at 227 (quoting *Archer v. Warren*, 118 S.W.3d 779, 782 (Tex. App. 2003)).

III

Before we discuss the merits of the Plaintiffs’ arguments on appeal, we must address a possible jurisdictional bar to our review of this case: the political question doctrine. *See Spectrum Stores, Inc. v. Citgo Petroleum Corp.*,

⁵ Plaintiffs appealed other rulings, the merits of which we do not reach because lack of causation is dispositive of all of Plaintiffs’ tort claims.

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632 F.3d 938, 943 (5th Cir. 2011); *see also Schlesinger v. Reservists Comm. to Stop the War*, 418 U.S. 208, 215 (1974).

“[T]he purpose of the political question doctrine is to bar claims that have the potential to undermine the separation-of-powers design of our federal government.” *Lane v. Halliburton*, 529 F.3d 548, 559 (5th Cir. 2008); *see Nixon v. United States*, 506 U.S. 224, 253 (1993) (Souter, J., concurring in judgment) (observing that the doctrine “deriv[es] in large part from prudential concerns about the respect we owe the political departments”). When a political question “is inextricable from the case at bar,” *Baker v. Carr*, 369 U.S. 186, 217 (1962), “a court lacks the authority to decide the dispute before it,” *Zivotofsky v. Clinton*, 566 U.S. 189, 195 (2012). The Supreme Court has explained that a case involves a political question where, *inter alia*, “there is a ‘textually demonstrable constitutional commitment of the issue to a coordinate political department; or a lack of judicially discoverable and manageable standards for resolving it.’” *Id.* (quoting *Nixon*, 506 U.S. at 228).

“[W]ar and foreign policy decisions,” including “decisions whether and under what circumstances to employ military force are constitutionally reserved for [the political] branches.” *Lane*, 529 F.3d at 559 (citation omitted). However, the political question doctrine does not prevent courts from entertaining every claim involving alleged military wrongdoing. *See Gilligan v. Morgan*, 413 U.S. 1, 11–12 (1973) (noting that the military’s conduct is not always beyond judicial review); *cf. Baker*, 369 U.S. at 217 (“The doctrine of which we treat is one of ‘political questions,’ not one of ‘political cases.’”). Thus, before declaring a case involving military decision-making to be non-justiciable under the political question doctrine, “a court must undertake ‘a discriminating analysis of the particular question posed, in terms of the history of its management by the political branches, of its susceptibility to judicial

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handling in the light of its nature and posture in the specific case, and of the possible consequences of judicial action.” *Lane*, 529 F.3d at 559 (quoting *Baker*, 369 U.S. at 211–12).

In *Lane v. Halliburton*, this court addressed allegations of fraudulent misrepresentation and negligence by military contractors KBR and Halliburton. *Id.* at 554. Plaintiffs, former KBR employees, claimed that KBR misrepresented the risks that they would face as truck drivers in Iraq. *Id.* at 554–55. The panel found that, for the political question doctrine to bar the plaintiffs’ claims, (1) the claims against KBR must “require reexamination of a decision *by the military*” and (2) “the military decision at issue [must be] insulated from judicial review.” *Id.* at 560 (quoting *McMahon v. Presidential Airways, Inc.*, 502 F.3d 1331, 1359 (11th Cir. 2007)). The *Lane* court found that, viewing the facts in the light most favorable to the plaintiffs, the plaintiffs’ claims only required the court to analyze KBR’s actions, “which [could] be examined by a federal court without violating the Constitution’s separation of powers.” *Id.* The court ultimately concluded that the case needed further factual development before it could be determined whether the political question doctrine barred the plaintiffs’ claims. *Id.* at 554.⁶

Here, Plaintiffs’ claims are directed at private parties, and do not on their face address decisions constitutionally committed to a coordinate branch. Thus, under *Lane*, KBR must show that the claims will require reexamination

⁶ Other circuits have similarly found that whether suits against military contractors are barred by the political question doctrine is a fact-intensive question. *See Metzgar v. KBR, Inc. (In re KBR, Inc.)*, 744 F.3d 326, 334 (4th Cir. 2014) (“[A]lthough cases involving military decision making often fall in the political question box, we cannot categorize such a case as nonjusticiable without delving into the circumstances at issue.”); *Harris*, 724 F.3d at 466 (“[T]o avoid infringing on other branches’ prerogatives in war-time defense-contractor cases, courts must apply a particularly discriminating inquiry into the facts and legal theories making up the plaintiff’s claims as well as the defendant’s defenses.”).

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of a military decision that is insulated from judicial review. *See id.* at 560. KBR argues that it would defend against Plaintiffs' claims by arguing that the military knew of potential sodium dichromate contamination at Qarmat Ali yet still chose to deploy soldiers there. According to KBR, evaluating this defense would require review of "military wartime decisions" that are demonstrably committed to the Executive Branch. KBR also argues that there are no judicially discoverable and manageable standards for resolving the question of who caused Plaintiffs' injuries, as "[a]ny trial of this case would necessarily require a jury to scrutinize these military decisions that are inextricably intertwined with KBR's causation defense." Further, KBR contends that we should find that the district court erred in denying its motion to designate the United States "military" as a responsible third party under section 33.004 of the Texas Civil Practice and Remedies Code, and claims that designating the United States a responsible third party means that "KBR was entitled to have the jury allocate fault to the military" and that "this suit is not justiciable." However, as discussed in the following section, Plaintiffs have failed to carry their burden at the summary judgment stage. We will not undertake a searching review of a hypothetical case when, as evidenced by the parties' briefing of the merits issues before us, this appeal "primarily raise[s] legal questions that may be resolved by the application of traditional tort standards," *Lane*, 529 F.3d at 563, which are plainly discoverable and manageable by the judiciary.

IV

To prove their tort claims against KBR—fraud, negligence, gross negligence, and intentional infliction of emotional distress—Plaintiffs must establish that KBR's conduct caused their injuries. *See, e.g., Wheaton Van*

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Lines, Inc. v. Mason, 925 S.W.2d 722, 728 (Tex. App. 1996).⁷ The district court found that Plaintiffs’ evidence was insufficient to prove causation because their expert’s methodology did not adequately explain the connection between their exposure levels and their injuries and Plaintiffs failed to provide sufficient epidemiological support to show that sodium dichromate exposure caused their alleged injuries.⁸ On appeal, Plaintiffs argue that the admission of expert testimony supporting causation bars summary judgment, that their expert’s “differential diagnosis” is sufficient to establish causation, and that lay testimony is sufficient to establish causation for their acute injuries.⁹

To survive summary judgment, Plaintiffs must establish a genuine issue of material fact as to whether exposure to sodium dichromate caused their injuries “based on a reasonable medical probability and scientifically reliable evidence.” *Black v. Food Lion, Inc.*, 171 F.3d 308, 310 (5th Cir. 1999).

⁷ The district court found, and the parties do not dispute, that Texas law applies to Plaintiffs’ tort claims.

⁸ The district court issued a separate order dismissing Plaintiffs’ “genetic transformation” injuries on the ground that Plaintiffs were asymptomatic. Plaintiffs have presented no arguments in this court regarding this order and therefore we find any such argument forfeited. See *Carl E. Woodward, L.L.C. v. Acceptance Indem. Ins. Co.*, 743 F.3d 91, 96 (5th Cir. 2014).

⁹ Plaintiffs claim that the district court erred by dismissing their tort claims on grounds that KBR did not raise: (1) the flaws of their expert’s use of “exposure categories”—estimated based on self-reported time at Qarmat Ali—to determine whether an injury was caused by sodium dichromate; and (2) the expert’s failure to consider the date Plaintiffs arrived on site as part of this analysis. However, KBR essentially raised the causation issues addressed by the district court by challenging Plaintiffs’ experts’ use of exposure categories as a proxy for dose, and by urging that it was logically flawed to assume that arrival at Qarmat Ali at any time would result in exposure to substantially the same dose of sodium dichromate due to varying weather conditions. Causation is an essential element of Plaintiffs’ claims, and KBR’s arguments put them “on notice that [they] had to come forward with [their] evidence.” *Lemoine v. Wolfe*, 575 F. App’x 449, 456 (5th Cir. 2014) (quoting *Celotex Corp. v. Catrett*, 477 U.S. 317, 326 (1986) (alterations in original)). Thus, the district court did not raise dispositive issues sua sponte.

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Plaintiffs must show both that sodium dichromate is capable of causing their alleged injuries (“general causation”) and that it did, in fact, cause their injuries (“specific causation”). *See Merrell Dow Pharm., Inc. v. Havner*, 953 S.W.2d 706, 714 (Tex. 1997). It is not enough that Plaintiffs have produced some expert testimony supporting their position, as “the reliability of expert testimony is . . . a prerequisite to its legal sufficiency.” *Abraham v. Union Pac. R.R. Co.*, 233 S.W.3d 13, 17 (Tex. App. 2007) (citing *id.*).

Plaintiffs offered expert testimony from Dr. Arch Carson, a medical doctor who specializes in treating individuals “who have been exposed to industrial chemical substances,” and Dr. Herman Gibb, an epidemiologist who has published several influential journal articles concerning the health effects of chromium. Gibb opined to “a reasonable degree of scientific certainty” that the Plaintiffs “have increased risks for a variety of health effects as a result of their exposure to sodium dichromate[, including] lung cancer; dermal and respiratory allergic response to chromium; other respiratory effects; and renal, gastrointestinal, and reproductive effects.” In forming his opinion, Gibb examined litigation documents, including Plaintiffs’ medical records. Gibb said that he did not have air quality measurements or other “quantitative information” that would enable him to make a dose-response assessment—an assessment describing the effects caused by differing levels of exposure. He opined that, given the lack of data, it was “impossible” to estimate each plaintiff’s exposure. However, he testified that “the reporting of symptoms and the description of the exposure” indicated that Plaintiffs incurred similar exposure to a cohort of industrial workers he had studied, and that Plaintiffs “had enough exposure to . . . develop symptoms like irritation and so-forth.”

Carson opined that, within reasonable medical probability, many of the Plaintiffs’ injuries were caused by exposure to sodium dichromate at Qarmat

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Ali. Carson detailed three categories of Plaintiffs' injuries: genetic transformation injuries, characterized by cell damage and an attendant heightened risk of cancer; acute irritation injuries, such as skin irritation, breathing difficulties, eye irritation, nosebleeds, sinus problems, headaches, persistent coughing, and gastro-intestinal irritation; and remote exposure injuries, such as ongoing skin, respiratory and gastrointestinal problems. In arriving at his conclusions, Carson examined litigation documents, physically examined the Plaintiffs, and studied Plaintiffs' medical records.

As part of his methodology, Carson assigned each plaintiff he examined a control number reflecting that plaintiff's self-reported time spent at Qarmat Ali. Carson did not consider the specific dates a plaintiff was stationed at Qarmat Ali, considering only the total time each plaintiff reported being at the site. Carson used these control numbers to put each plaintiff into an "exposure category." Carson gauged whether Plaintiffs' injuries were caused by sodium dichromate based on the assigned exposure categories. He testified, "The exposure category followed directly from the control number, and was only utilized in terms of my determination whether or not the relationship between chromium exposure and symptoms or illnesses was plausible." He agreed his methodology was to "look at people and compare the symptoms that they claimed as compared to the exposure category [he] had put them [in] and reach conclusions based on that." Carson did not create any tables or summaries of these exposure categories or their application.

This exposure category analysis was Carson's only quantitative analysis of Plaintiffs' dosage. He stated that, to his knowledge, there were "no credible" exposure measurements. Carson testified that he did not know the dose of sodium dichromate any particular individual plaintiff was exposed to.

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Nevertheless, he opined that the level of exposure was “many orders of magnitude or much greater than historical industrial exposures” based on:

the amount of contamination; the type of area it was; the fact that it was extremely dry most of the time, although it did rain occasionally; that it was very windy, that there were recurrence [sic] of windstorms periodically; and the preponderance of acute irritative symptoms that the Guardsmen out there and the KBR personnel experienced.

Carson opined that Plaintiffs’ dosage was higher than that received by the subjects of Gibb’s study and quoted Gibb’s report stating that the contamination at Qarmat Ali was similar to that of a “Superfund site[].”¹⁰ However, he testified that he was not aware of any studies that have conclusively shown that there are health effects in humans from exposure to a hexavalent chromium compound, such as sodium dichromate, in an outdoor setting like a Superfund site.

The Texas Supreme Court held in *Merrell Dow Pharmaceuticals, Inc. v. Havner* that, in the absence of direct evidence of causation, plaintiffs may rely on epidemiological studies¹¹ to prove causation where such studies demonstrate a statistically significant doubling of the risk of the injuries alleged. 953 S.W.2d at 718; see *Merck & Co. v. Garza*, 347 S.W.3d 256, 265 (Tex. 2011). Moreover, “[t]o raise a fact issue on causation” a plaintiff “must show that he or she is similar to those in the studies.” *Havner*, 953 S.W.2d at 720. Proof that one is similarly situated to subjects in epidemiological studies

¹⁰ A Superfund site is an area that has been contaminated by toxic waste and designated for remediation by the Environmental Protection Agency. See *United States v. Gen. Elec. Co.*, 670 F.3d 377, 381 n.3 (1st Cir. 2012).

¹¹ “Epidemiological studies examine existing populations to attempt to determine if there is an association between a disease or condition and a factor suspected of causing that disease or condition.” *Havner*, 953 S.W.2d at 715.

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must “include proof that the injured person was exposed to the same substance, that the exposure or dose levels were comparable to or greater than those in the studies, that the exposure occurred before the onset of injury, and that the timing of the onset of injury was consistent with that experienced by those in the study.” *Id.* To prove causation through epidemiological studies, a plaintiff must provide more than one study that meets this criteria. *See Garza*, 347 S.W.3d at 266; *Havner*, 953 S.W.2d at 727. Moreover, “other plausible causes of the injury or condition that could be negated [must be excluded] with reasonable certainty.” *Garza*, 347 S.W.3d at 265–66 (quoting *Havner*, 953 S.W.2d at 720); *see also Cotroneo v. Shaw Env’t & Infrastructure, Inc.*, 639 F.3d 186, 193 (5th Cir. 2011).

Plaintiffs do not argue that their evidence complies with the *Havner* standard, arguing instead that epidemiological studies are not the exclusive means of establishing causation. However, Plaintiffs *do* seek to rely on epidemiological studies, citing to, inter alia, Gibb’s studies of chromate-production workers who were exposed to hexavalent chromium at a factory. And, where a plaintiff seeks to rely on epidemiological evidence, Texas law requires that the studies show a statistically significant doubling of the risk of developing their alleged injuries. *See Garza*, 347 S.W.3d at 265 (“*Havner* holds, and we reiterate, that when parties attempt to prove general causation using epidemiological evidence, a threshold requirement of reliability is that the evidence demonstrate a statistically significant doubling of the risk.”); *see also Young v. Mem’l Hermann Hosp. Sys.*, 573 F.3d 233, 236 (5th Cir. 2009).

The studies relied on by the Plaintiffs and their experts do not reflect a statistically significant doubling of the risk of their injuries. One of these studies did not quantify the risk of developing Plaintiffs’ chromium-related-acute-irritation injuries at all and the other study did not find a doubling of

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the risk. In addition to Gibb's studies, Plaintiffs reference National Institute for Occupational Safety and Health and Agency for Toxic Substances and Disease Registry reports concluding that sodium dichromate causes headaches and nose, throat, skin, respiratory tract and gastro-intestinal irritation. Plaintiffs also claim that Carson relied on "numerous scientific articles supporting his contention that sodium dichromate causes various ailments." Plaintiffs did not submit these studies into the record and do not claim that any demonstrates a statistically significant doubling of the risk of any of their injuries. While the reliability of expert testimony is to be viewed in light of the totality of the evidence, "[t]he totality of the evidence cannot prove general causation if it does not meet the standards for scientific reliability established by *Havner*. A plaintiff cannot prove causation by presenting different types of unreliable evidence." *Garza*, 347 S.W.3d at 268.

Because none of this epidemiological evidence meets the reliability threshold of *Havner* and its progeny, it cannot be considered competent summary judgment evidence establishing general causation. *See id.*; *Daniels v. Lyondell-Citgo Refining Co.*, 99 S.W.3d 722, 730 (Tex. App. 2003). Because the evidence underlying Gibb's and Carson's opinions is unreliable as a matter of Texas law, their testimony is also insufficient to prevent summary judgment. *See Havner*, 953 S.W.2d at 714.

Plaintiffs argue that, notwithstanding this deficiency, their claims should still survive summary judgment. First, Plaintiffs claim that "a differential diagnosis [excluding other potential causes of injury] constitutes an accepted means of proving causation when it is scientifically accepted that a particular toxin is capable of giving rise to the underlying injury." However, a differential diagnosis is only relevant after general causation has been reliably established "because a differential diagnosis *presumes* that chemical

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X can cause condition Y generally, but does not itself so prove.” *Coastal Tankships, U.S.A., Inc. v. Anderson (In re Estate of Anderson)*, 87 S.W.3d 591, 609 (Tex. App. 2002). Carson’s differential diagnosis does not relieve Plaintiffs of their burden of adducing reliable evidence of general causation. *See Johnson v. Arkema, Inc.*, 685 F.3d 452, 469 (5th Cir. 2012) (upholding exclusion of expert’s differential diagnosis where there was no “reliable or relevant scientific evidence” to support the expert’s presumption of general causation); *Matt Dietz Co. v. Torres*, 198 S.W.3d 798, 805 (Tex. App. 2006) (finding differential diagnosis insufficient to establish causation where there was no reliable evidence that “exposure to a specific substance at specific levels [could] cause the injury in question”).

Second, Plaintiffs argue that, regardless of the sufficiency of their expert testimony, they have adduced sufficient evidence of causation for their acute injuries on the basis of lay testimony. While Plaintiffs correctly argue that they need not cite a particular case in the district court to rely on it on appeal, Plaintiffs failed to argue in their opposition to summary judgment in the district court that lay testimony was sufficient to support causation. They similarly failed to rely on lay testimony in their motion for reconsideration of the district court’s decision on causation. We will generally not countenance arguments not raised before the district court. *See, e.g., Keenan v. Tejada*, 290 F.3d 252, 262 (5th Cir. 2002) (“If a party fails to assert a legal reason why summary judgment should not be granted, that ground is waived and cannot be considered or raised on appeal.” (quoting *Grenier v. Cyanamid Plastics, Inc.*, 70 F.3d 667, 678 (1st Cir. 1995))). We therefore deem this argument forfeited.

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For these reasons, we find that Plaintiffs have not adduced sufficient evidence to avoid summary judgment.¹²

In light of the foregoing, we AFFIRM the district court's grant of summary judgment and dismissal of Plaintiffs' claims.

¹² The district court separately addressed the claims of Lieutenant Colonel James Gentry, a former member of the Indiana National Guard who died of lung cancer in 2009. Like the other plaintiffs, Gentry brought claims of negligence, gross negligence, intentional infliction of emotional distress, and fraud against KBR arising out of his exposure to sodium dichromate at Qarmat Ali. As with the other plaintiffs, Gentry's claims are not supported by two *Havner*-compliant epidemiological studies which show a doubling of the risk of developing lung cancer. Plaintiffs cite one study which showed a relative risk factor of 2.24. Plaintiffs allude to "numerous other studies that demonstrate an elevated lung cancer mortality associated with hexavalent chromium," but they have not argued that any of these shows a statistically significant doubling of the risk of developing lung cancer. As discussed above, Carson's differential diagnosis does not cure these problems, even if we assume his methodology is reliable. *See Johnson*, 685 F.3d at 469. Thus, the district court correctly granted summary judgment in favor of KBR with respect to Gentry's individual claims.