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# Insurtech Looks to Extinguish Fire Losses

TRISTAN FRANCOIS

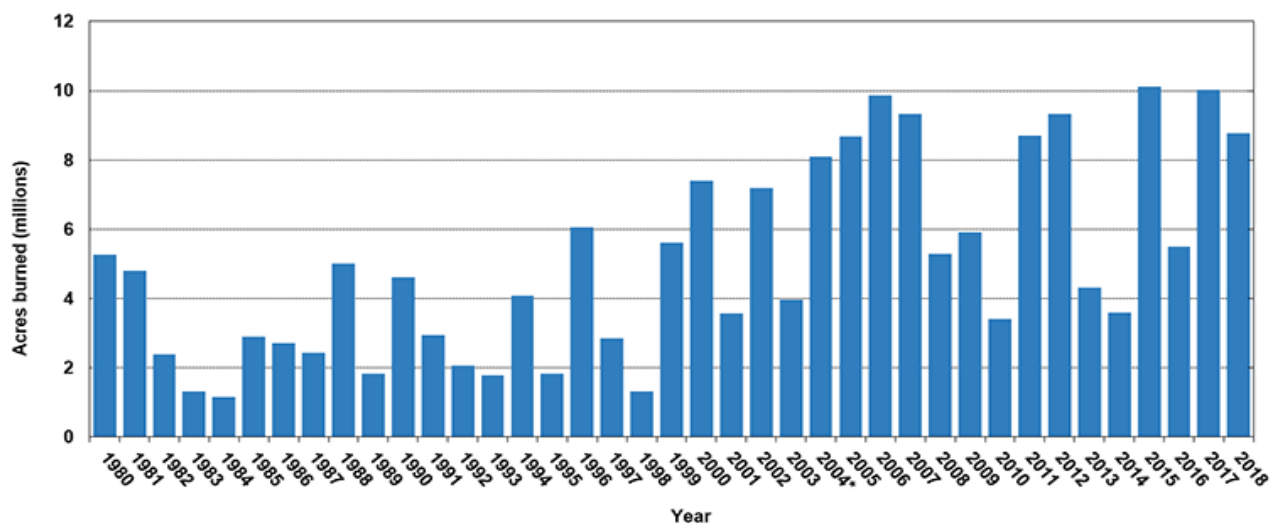
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19 April 2020

## Introduction

Few risks in the past decade have been as detrimental to insurers as wildfire. States such as California, Nevada, and Oklahoma have been plagued by this natural disaster as increasing temperatures due to climate change leave these states more prone to frequent fires that are easily spread. This leaves those who have fire covered under their homeowners policies in a vulnerable position. In Fall of 2019, over 300,000 Californians had their homeowners policies cancelled after insurers experienced massive losses due to the Kincade and Walker fires (Leefeldt, 2019). Insurers experienced losses of \$24 billion from the 2017 and 2018 wildfires, and over \$12 billion in losses from November of 2019 alone. After public outcry, California's insurance commissioner placed a 1-year moratorium on insurers' ability to cancel coverage in places affected by 2019 wildfires (Kasler, 2019). Faced with the challenge of covering a recently uninsurable loss, new innovative ideas and technology have been developed to not only minimize losses, but to regain profitability.

**Figure 1. Acres Burned in California Wildfires 1980 - 2018**



Source: <https://tinyurl.com/yd4o6635>

## **Challenges**

There are several factors that contribute to the recent uninsurability of wildfires. Similarly to flood, insurers are unable to price premiums in an actuarially sound way. Before the uptick in wildfire losses, premiums accurately reflected the expected loss; since the effects of climate change increased frequency, accurate premiums would price homeowners out of the region. For example, a couple in Lake County California had their coverage cancelled in 2018 and were forced to seek coverage with Lloyd's of London. The cost of the new plan was \$2,100, then more than doubled to \$5,800 the following year. Due to this, the couple was forced to opt for a higher deductible plan with \$200,000 less of property coverage, leaving them dangerously underinsured (Newberry, 2018). In addition, despite the increased risk and more expensive coverage, homeowners still flock to high risk areas. Why people choose to live in such a dangerous area, sometimes even after having to rebuild due to wildfire, is a complex issue. Psychologist Paul Slovic, a professor at the University of Oregon, says hazards that are visible and well understood perturb individuals less than those that are unseen such as asbestos and radiation. Slovic argues that people like to believe they have a basic understanding of fire and its mechanics, so they often dismiss the seriousness the risk poses (Meszaros, 2019). This means that the need for insurance to cover fire losses will be constant, and insurers need to adapt to take advantage of this large market.

One of the biggest issues that has led to turbulence in the wildfire insurance market in California and other nearby states is the utilization of outdated wildfire modeling. Data for single neighborhoods and old risk maps drawn by the Department of Forestry and Fire Protection are extrapolated for insurance decisions regarding entire zip codes. Moreover, insurers often use their own scoring system to judge the risk a home faces. For example, State Farm has its own

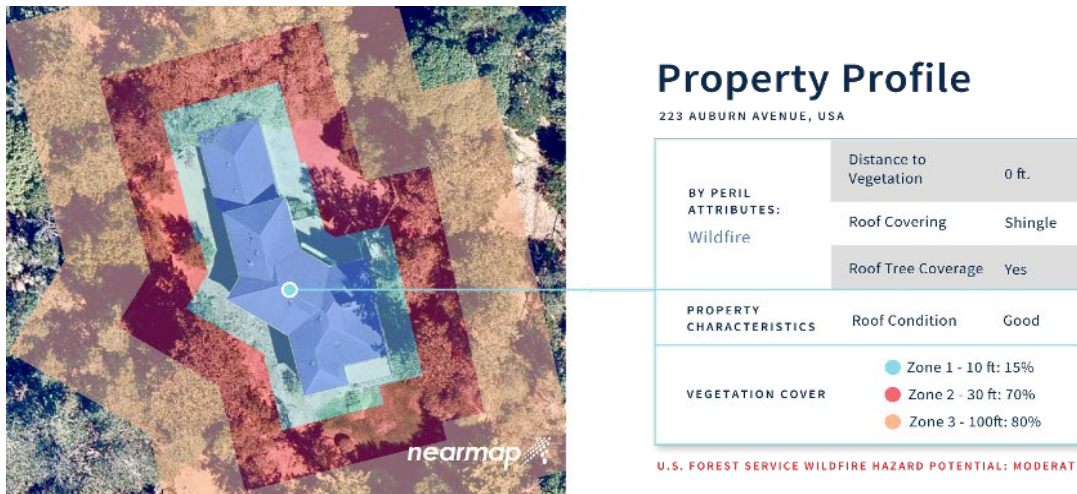
scoring system that utilizes information such as the condition of the property, the natural disasters that may occur in the region, and a policyholder's claim history (Holder, 2020). This data is a surface level approach and severely inadequate. Think of the important data that this system omits such as topography, firefighter's ability to access the area, and greenery around the property, and one can get a sense of the insufficiencies an underwriter has to properly price the risk.

## **Solutions**

### **A. Satellite Imagery and Loss Control**

Insurers reward policyholders that take loss control measures by allowing coverage in high risk areas, or even lowering the premium for the policy. Some of these mitigation techniques include removing brush near the home or eliminating trees that hang over the property. Insurers also reward those who build their homes with ignition-resistant materials. Those practices have been standard for some time, but now insurers are partnering with managing general agent Delos that uses proprietary modeling techniques through the use of satellite imagery. This technology allows Delos to inform homeowners of vegetation that is inching towards their property, and it can be a priceless tool to eliminate the chance of disaster. According to the Federal Emergency Management Agency (FEMA), eliminating vegetation that lies within thirty feet of a home is one crucial way to reduce wildfire damage (Knapp, 2019).

**Figure 2. Satellite Image Highlighting Vegetation Near Home**



Source: <https://tinyurl.com/ybufw37>

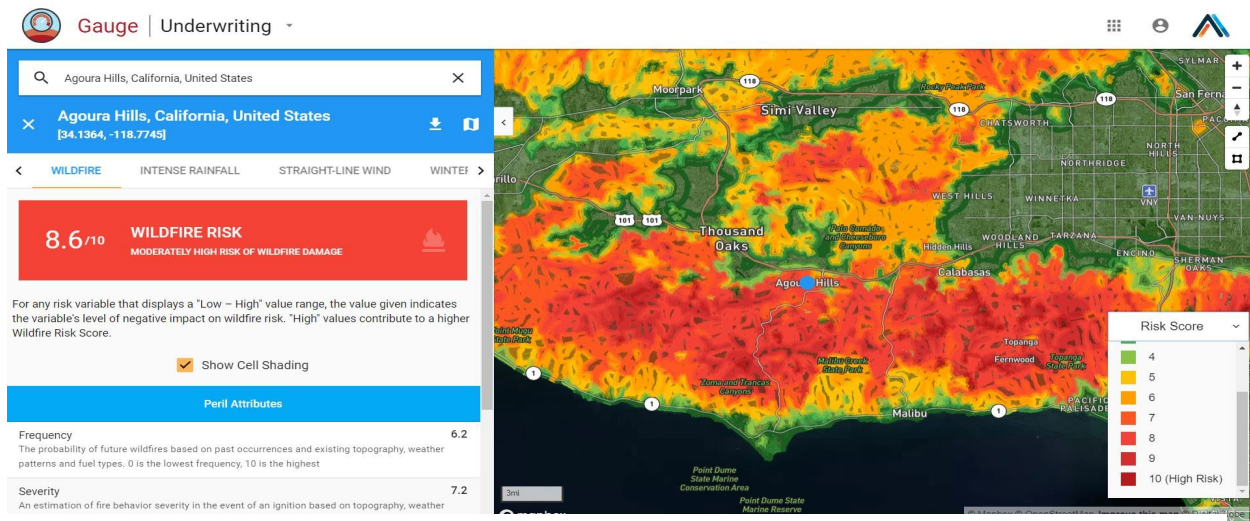
This satellite imagery is also being used to define homes at the highest risk for wildfire loss. High-risk zones allow insurers to have tangible evidence that homeowners require higher premiums. An individual who chooses to live in a high-risk zone is accepting the likely risk of damage and should anticipate a higher cost because of it. According to Delos co-founder Kevin Stein, 18 million homes are incorrectly categorized (Kumparak, 2019). In addition to encouraging that policyholders continue to implement common loss control methods, insurers should partner with Delos to establish new high-risk zones and inform those who may have unknown vegetation near their home.

Another company that uses satellite imagery, Cape Analytics, is aiding insurers by providing them with swift information on loss control efforts taken by policyholders. For example, an insurer may require a policyholder to shorten the hedges on their property or institute ember-resistant vents in order to mitigate risk. Instead of the insurance company paying for an employee to visit the site to ensure these measures were implemented, Cape Analytics simply snaps another picture of the property and sends it to the insurer to prove whether or not the policyholder complied (Holder, 2020).

## B. Predictive Risk Scoring

Another technological breakthrough in fire mitigation is the use of predictive risk scoring. Insurers can partner with companies such as Athenium Analytics to utilize comprehensive modeling. Athenium Analytics uses technology it calls GaugeWildfire to look at data such as grading, landscape type, weather, fire station proximity, solar exposure, and more in order to assign each property a “wildfire risk score.” The data the company uses is valuable to insurers because the technology is able to simulate 50,000 years of wildfire statistics for any given area. Insurers can use this score to more confidently underwrite properties by having an in-depth understanding of the risk (“Wildfire Risk Analysis”, 2020).

**Figure 3. GaugeWildfire Analytic Tool Snapshot**



Source: <https://tinyurl.com/y969qc4r>

Furthermore, Athenium Analytics offers DexterWildfire, a cloud-based technology that insurers can use to verify the legitimacy of claims to avoid fraud. This product works by supplying the most current position data for wildfire occurrences. Insurers are able to see where wildfires occurred, allowing them to affirm that the loss was due to a natural cause rather than a malicious act such as arson. DexterWildfire also provides insurers with wildfire boundary

updates so they can track the advancement of a fire. Insurance companies upload their wildfire portfolio to Athenium and subsequently receive data relating to past losses in the areas they insure (“Wildfire Risk Analysis”, 2020). These tools are an excellent way for insurers to select good risks and manage a profitable book of business.

### **C. Preventive Technology**

There are more ways to combat the risk of fire other than the traditional loss prevention strategies such as removing vegetation and using flame resistant building materials. A wide variety of companies are utilizing artificial intelligence (AI) in an assortment of ways to mitigate the spread of wildfires. In this case, San Diego Gas & Electric is using AI along with an array of high-resolution cameras to anticipate and terminate wildfires. The cameras have the capability to pick up footage of dangerous circumstances while the AI algorithms can identify defective or impaired power lines before they come in contact with the ground and ignite a fire. The company is also employing a network of high-quality cameras fixated on mountaintops in order to scour nearby areas for smoke plumes to alert first responders before the wildfire begins to spread.

Another initiative incorporates the use of high-resolution maps using computer tracking to recognize where wildfires are most likely to start, and to forecast where they will spread. This technology is also able to distinguish how catastrophic a fire will be, and what locations will be most impacted by the enormous smoke clouds that are produced. This technology has already proved its merit; in July of 2019, officials were able to sniff out the West Fire in California a day before it occurred, allowing Kern County to initiate emergency protocol ahead of time (Montgomery, 2019). All of this data is extremely valuable in insurers’ efforts to minimize losses. Insurers may benefit from investing in this technology and having it tailored to their business portfolio. The investment would be welcomed from companies like San Diego Gas &

Electric, as the entire sector benefits from less destructive fires. The benefits of investing in this technology will far outweigh the cost, especially as the ability of artificial intelligence improves and the predictive modeling becomes more accurate.

#### **D. Avoidance**

While new technological advancements are an excellent sign for the insurability of wildfires, it may take time for these solutions to become the industry standard. Excess and surplus insurers may be more willing to take on risks utilizing these strategies than their counterparts. This is a considerable opportunity for E&S insurers to profit on technology that standard insurers may be hesitant to incorporate due to the lack of substantial successful data. Despite this, and even though insurers in California are presently banned from cancelling policies from current policyholders for one year, standard market and E&S insurers should be vigilant in which risks they choose to accept in the future. Like flood insurance, policyholders are unwilling to accept the true cost of protecting against fire. Loss ratios for insurers have been devastating for companies such as Allstate who had an abysmal homeowners loss ratio of 271% in 2018, followed by Farmers with a ratio of 243%, and Travelers with 226% (Sams, 2019).

#### **Insured US Losses in California 2000 - 2018**

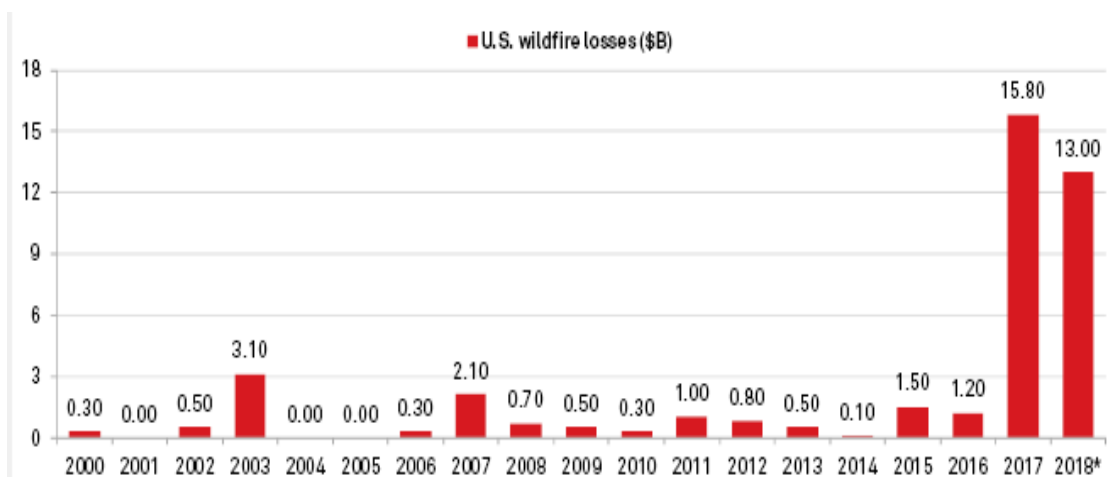


Figure 1 Source: <https://tinyurl.com/y88jmlhu>

It is not the obligation of a for-profit company to foot the bill for those who make the ill-advised decision to live in a high-risk fire zone. Those who choose to live in these zones can expect to invest heavily in loss control, pay their fair share in premium, or choose to live elsewhere.

Choosing to not insure these homes is not unethical, The Fair Access to Insurance Requirements (FAIR) program is a state-run pool that serves as a last resort to policyholders who have been denied coverage (Moon, 2020). Though this policy is expensive, it serves a backdrop and can bring to the attention of policyholders the true risk wildfire represents.

## **Summary**

The risk of wildfire presents a variety of challenges, and the severe proliferation in climate change exacerbates this risk for insurers and homeowners alike. It will take a severe restructuring of the manner insurers view wildfire mitigation and pricing to ensure the survivability of the market. Customers are being forced to move out of their homes due to the inability to keep up with devastating homeowners premiums that reflect the increase of insured losses in recent years. Outdated maps and risk scoring methods are still being utilized by insurers which has caused inaccurate pricing leading to abhorrent loss ratios in 2017 and 2018.

Thankfully for insurers, the future of covering wildfire risk is bright as new insurtech is looking to revolutionize the market. Satellite imagery will allow insurers to ramp up loss control measures by identifying vegetation and verifying that policyholders are addressing the issue swiftly. Doing so will decrease claims and administrative expenses by ensuring loss control took place and eliminating the cost of paying employees to visit homes. Technology such as GaugeWildfire and DexterWildfire will allow insurers to price premiums correctly by utilizing an accurate risk score that is made up of several variables that were not considered in traditional models. Other forms of tech include cameras that can detect the start of a fire and pinpoint smoke

clouds for first responders to neutralize the threat before it spreads. If the fire is not contained in time, technology has been developed to track where the fire and smoke are likely to spread.

Insurers would be wise to invest in this technology to minimize catastrophic loss.

The next few years will likely be a time of implementation and careful monitoring to gauge the success of newly developed insurtech. In the meantime, insurers should leave homes in high risk zones to the FAIR program in order to ensure the best chance minimizing losses. E&S insurers should carefully assess the probability that these technological advancements will succeed, and consider implementing them in the present to take advantage of untapped profitability, as this insurtech is likely to be the future industry standard.

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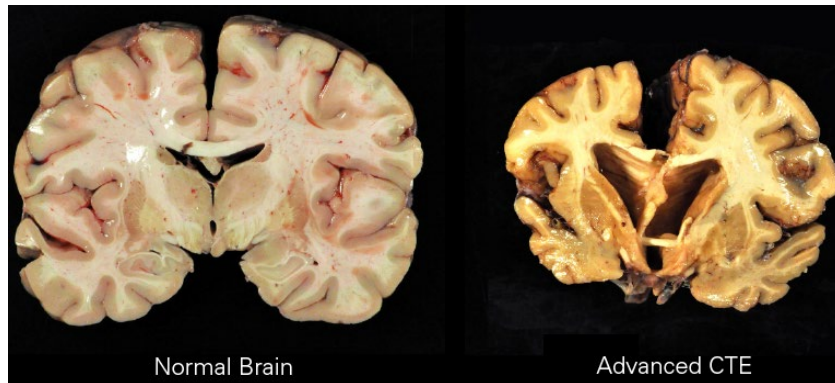
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Saint Joseph's University

CTE and the Role of Excess and Surplus Lines:

The Future of Sports



Ashley Martin

04.19.2020

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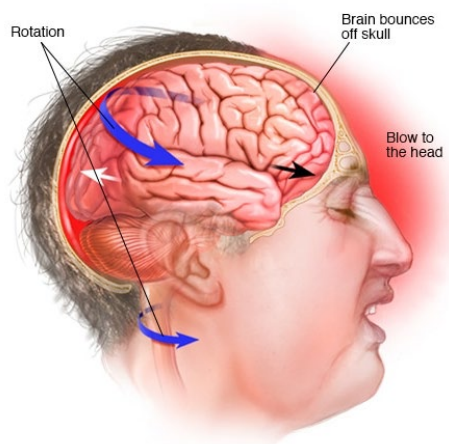
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## I. Introduction:

Imagine a world without football. The end of Sundays filled with watching games and cheering for your team, the end of Super bowl parties and high school homecoming games. The absence of football would leave a huge hole in American culture. Football was first invented in 1869 and it has been an American tradition ever since. However, the end of football might be closer than we think. The high frequency and severity of claims is making sports organizations at all levels undesirable to insure. The number of head injuries, deaths, and lawsuits have only increased and is spreading into younger ages of athletes, making it no surprise that insurers are becoming less willing to write coverage for varying organizations like Pop Warner, NFL, and even helmet manufacturers because of the uncertainty and lack of profitability. The only way to save football from becoming uninsurable is through the transfer of head trauma exposures from the standard market to excess and surplus lines (non-admitted).

## II. Background on CTE:

Chronic traumatic encephalopathy is a medical term used to describe the degenerative brain disorder caused by repeated trauma to the head and is only officially diagnosable through



post mortem autopsy.<sup>1</sup> CTE is a condition with endless uncertainties because the medical field does not possess a full understanding of the condition. CTE has been most prevalent in professional athletes especially in high impact contact sports like football, hockey and boxing. Symptoms of CTE include cognitive impairment, impulsive behavior, depression, short-term memory loss, emotional instability,

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<sup>1</sup> Diagram 1: "A concussion occurs when a blow to the head or a sudden jolt shakes the head and causes movement of the brain inside the bony and rigid skull" (MayoClinic).

substance misuse, and suicidal thoughts (Mayo Clinic). CTE is also difficult to diagnose because symptoms do not appear immediately after head trauma, the condition takes years and sometimes even decades to appear. CTE causes certain areas of the brain to atrophy and this degeneration of nerve cells can significantly impact communication between brain cells. A type of brain cell called neurons are unique in the human body because they are unable to regrow or replace themselves so when brain cells die there is very little that can be done from a medical perspective (“Cells of the Nervous System”).

### **III. Head Injury Risk Drivers:**

It is extremely difficult to underwrite for CTE and other neurological issues because of the small amount of data, limited medical knowledge, and the long term onset of the condition. However, there are many other factors that may affect the size of losses for CTE claims<sup>2</sup>.

Potential loss amount impactors specific to injuries like CTE include:

- 1) “The number of current and former players in the NFL, collegiate, high school, and other football programs
- 2) The number of organizations promoting and supporting the sport in the U.S.
- 3) Injury trends in NFL, collegiate, and other recreational leagues
- 4) Participation trends for each group over time
- 5) Concussion protocols used: Stricter concussion monitoring may help reduce the frequency and severity of head injuries
- 6) The changing nature of the sport: The size of football players has increased over time, and that has likely increased the number and severity of football-related head injuries
- 7) Length of football-playing career: One recent study found that the length of a player's career could impact the severity of brain damage” (Rapaport).

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<sup>2</sup> The potential for punitive damages in cases where protective measures were not taken or when risks of concussion may have been known but not disclosed to players. The potential for loss of earnings due to declining cognitive abilities of players over time. The type of brain disease contracted—treatment costs for different diseases vary significantly” (Gagarin).

#### IV. Excess and Surplus Lines:

Excess and surplus lines coverage “offers policyholders with unique risk or poor loss history an opportunity to obtain insurance that could not be procured through standard lines” (Johnson). These lines do not require companies to be licensed by the state, but companies are permitted to do business in a state through a wholesale broker or managing general agent. In most cases, a policy can only be written after it is rejected by a standard lines carrier and proof is shown of the denial. A benefit of excess and surplus lines carriers is they are not required to conform to state or federal rate regulations because they write business for such unique exposures, having a rate limit would make large, complex exposures impossible to ensure adequately. All of these characteristics of excess and surplus lines make it ideal for insuring an exposure as large and complex as CTE.

#### V. Important Sports Statistics:

The following data displays the number of diagnosed concussions that were reported in the NFL for preseason, regular-season practices, and games. Every year starting in 2012 has

#### Incidence of Concussion – 2012-2019

Year	Preseason			Regular Season			Preseason + Regular Season		
	Practice	Game	Total	Practice	Game	Total	Practice	Game	Total
2012	42	43	85	3	173	176	45	216	261
2013	39	38	77	4	148	152	43	186	229
2014	42	41	83	8	115	123	50	156	206
2015	29	54	83	9	183	192	38	237	275
2016	26	45	71	6	166	172	32	211	243
2017	45	46	91	12	178	190	57	224	281
2018	45	34	79	8	127	135	53	161	214
2019	30	49	79	9	136	145	39	185	224

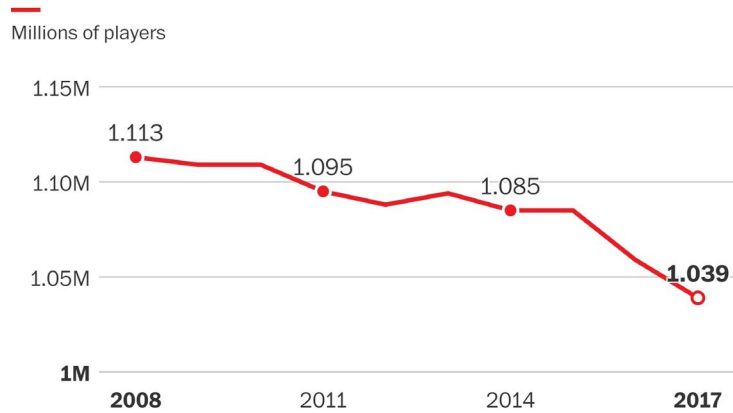
Injuries reported during conditioning, weightlifting, run sessions, or individual training, as well as chronic injuries or those with insidious or unknown onset are not included.

consistently been over 200 concussions and reached its all-time highest number in 2017 (See diagram 2). Additionally, in high school football, since 2009 there has been a dramatic decrease in the number of athletes participating in the

sports and this is displayed throughout the entire United States<sup>3</sup> with one of the largest reasons being fear of injury or related head trauma like concussions.<sup>4</sup>

**Football participation keeps dropping**

The fall in high school football enrollment continued in 2017. More than 20,000 fewer high schoolers played football last year than the year before. In the past decade, football participation is down 6.6 percent.



Source: National Federation of State High School Associations

JACOB BOGAGE/THE WASHINGTON POST

**VI. CTE Lawsuit History:**

CTE is a condition with so many medical uncertainties regarding not only symptoms but also causes and impact on the brain function. Therefore, this makes it very difficult for insurance companies to write policies, address claims and ultimately underwrite in the coming future.

Starting in 2011, lawsuits began being filed against the national football league claiming the NFL was aware that the repeated concussions resulting from the sport had the potential to inflict serious long term head injury and also accused the NFL of concealing the risk to all athletes of the league. The NFL settled in 2016 for all deceased athletes diagnosed with CTE and similar conditions like Alzheimer’s, ALS, Parkinson’s and other neurological impairment, that occurred prior to April 22, 2015. Each individual is eligible to receive up to a maximum limit of 4 million dollars as compensation to the family (Belson). However, litigation did not cease at the NFL, within months of the first NFL suit, claims were filed against the NCAA for the same reason;

<sup>3</sup> 2009 – 2018: 6.6% drop in participation (National Federation of State High School Association). North Carolina: 17% drop, 2009 – 2016 (McLatchy News). Illinois: 15% drop, 2007-2016 (Chicago Tribune). 2008-2016: 29% drop in participation in youth football (ESPN: Tom Farrey)

<sup>4</sup> Diagram 3 note: As the graph above displays, the number of athletes participating in high school football has continually decreased since 2008, which marks the beginning of the claims for CTE. In only one decade, participation has dropped almost 7% according to the National Federation of State High School Associations.

alleging concealed and misrepresented information about athlete head injuries. The NCAA agreed on settlement terms to pay 70 million dollars for funding and medical monitoring of athletes to provide screening of all current and former athletes for consequences resulting from

**Table 5-6  
Total Incidence and Profile for Level 2, by Year**

<u>Year of Diagnosis</u>	<u>Players Still Living</u>	<u>Number Diagnosed</u>	<u>Percent Diagnosed</u>	<u>Average Age</u>	<u>Average Years Played</u>
<2006	21,070	206	0.98%	74.5	3.5
2006 - 2010	20,343	71	0.35%	67.4	5.7
2011 - 2020	19,699	334	1.70%	73.6	5.2
2021 - 2030	17,595	541	3.07%	75.2	4.9
2031 - 2040	14,501	615	4.24%	75.3	4.3
2041 - 2050	10,635	648	6.09%	77.5	4.0
2051 - 2060	6,632	537	8.10%	80.1	4.1
2061 - 2070	3,114	325	10.44%	83.9	2.9
2071 - 2080	850	72	8.47%	88.3	1.9
2081 +	67	5	7.46%	95.8	1.4
<b>Total</b>		<b>3,354</b>	<b>15.92%</b>	<b>77.2</b>	<b>4.2</b>

concussions. The NCAA is also providing 5 million dollars for concussion research (Belson).

“The NCAA still faces dozens of suits (some naming individual colleges or universities as defendants) by student athletes who allege they suffered concussions resulting in bodily injuries, and that they have an increased risk of long-term cognitive impairment” (Swiss Re). Even Pop Warner, a youth football league, was forced to settle two cases for athletes diagnosed with CTE.<sup>5</sup>

## **VII. Connection to Excess and Surplus Lines:**

Excess and surplus lines carriers have an extremely large role in CTE claims. This is because professional sports organizations like the NFL possess such large and unique risks that they are forced to insure with non-admitted carriers. Excess and surplus lines also maintain a

<sup>5</sup> Diagram 4 note: As you can see in this chart: the number of diagnoses for CTE and similar head related trauma conditions has spiked after 2006-2011 when much more awareness was brought to the issue by public claims and lawsuits from high profile professional athletes. By 2050, the number of athletes in the NFL with CTE is only set to increase to over 3 times that of 2006.

large role because helmet and equipment manufacturers have claims being filed against them for risks they had not originally planned for. As a result, the organizations are rejected by admitted carriers and forced to transfer exposures to non-admitted E&S carriers.

### **VIII. Standard Policy Language:**

As mentioned in the Locke and Lord Webinar on CTE, defendants are looking straight to general liability insurers to cover the cost of litigation and for indemnification for the loss. “The proliferation of these cases and increased scope of potential liability raise a multitude of liability and coverage issues for insurers who issue CGL or other policies to sports and/or education organizations” (Primps). The part that is causing conflict between insurers and insured is the definition of an occurrence and the definition of bodily injury in coverage forms. For ISO commercial general liability coverage forms, bodily injury is defined as “bodily injury, sickness or disease sustained by a person, including death resulting from any one of these at any time” (ISO). This obviously conflicts with the head trauma claims because it's hard to put that kind of condition into a “sickness” or “disease” category. In addition to bodily injury policy language, the definition of an occurrence is also a cause of concern for insured in CTE claims. The definition of an occurrence for CGL is “an accident, including continuous or repeated exposure to substantially the same general harmful conditions” (ISO). CTE claims are not just one incident or event but multiple head injuries or years or sometimes decades of professional sports.

### **IX. Mitigation strategies:**

In order for excess and surplus lines insurers to deal with losses exposures associated with CTE, insurers must adopt new and innovative strategies to properly handle claims. Strategies can include; creating policy exclusions, altering policy language, modifying coverage limits, reviewing rates to ensure they are adequate which may require actuarial services, “product

modification to offer buy back coverage at an appropriate and additional rate; and aggressive and affirmative defense of claims” (Primps). Having an aggressive defense strategy is an important part of CTE claims. A number of various defenses have been utilized by insurance companies to deflect CTE and other head trauma claims which include:

- 1) Incident occurred outside the policy period
- 2) Does not fall within the definition of bodily injury or occurrence
- 3) Intentional conduct by insured organization
- 4) Should have been reasonably expected outcome
- 5) “Constitute known losses, pre-existing conditions, losses in progress, and/or that were otherwise non-contingent and non-fortuitous” (Primps).

#### **X. Policy Options for Head Trauma:**

All the uncertainty in the insurance industry at the time of CTE claims resulted in many insurers adding absolute exclusions for head trauma on policies. However, insurers are also able to better write CTE related issues better than when claims first appear, therefore they are able to offer policies with or without head trauma exclusions for a set price and the person or organization can make the cost decision best fit for them as to whether or not they want additional coverage. Insurance of America representatives spoke on this adaptive policy change, saying that the most important action for an organization, is looking at their balance sheet and deciding if the extra premium cost is worth the potential large liability claims in the future.

#### **XI. Negligence Claims:**

A big question to be asked regarding CTE and many other athletic injuries at the professional level is whether it is an act of negligence by coaching staff, athletic trainers, and the league itself. When an important athlete is injured in a game and trainers allow him to return back to the game are they doing this for the best interest of the player’s health or the interest of the team? This question was thrown into litigation claims for CTE because former players

questioned whether or not the leagues from professional sports knew the damage repetitive head trauma was causing and concealed the information from players or misrepresented the severity of it. In 2013, former players took it one step farther by accusing the NFL of not just negligence, but of deliberately hiding information on the dangers of head injuries from their players. The case consisted of 32 different insurers who all wrote liability coverage for specifically the NFL some going all the way back to 1960 (Belson). Ken Belson from New York Times also stated that, “Insurers banded together for the purposes of their suit, but they had different amounts of exposure. Some insurers were the primary parties covering damages, while others wrote excess liability policies. Some insurers wrote policies for only a year or two, while others worked with the N.F.L. for many years. Some of the insurers took over the claims from other companies in mergers and acquisitions. A half dozen insurers settled with the N.F.L. in 2017, leaving 26 companies, including Allstate and Travelers, to continue fighting” (Belson).

## **XII. Future Role of E & S:**

As the insurance industry continues to dispute the topic of CTE and settle claims with not only professional sports organizations like the N.F.L, but also amateur and youth sports leagues. This certainly leaves an inevitably large precedent in the standard (admitted) market. The market will surely adapt to this increase in both frequency and claim severity. However, this leaves insurers with tough decisions to either: increase rates, decrease capacity, or exit the portfolio of business altogether. Increasing rates and minimizing capacity will be tough for insureds to place business. On top of insurers exiting the line portfolio of business; it will become almost impossible to find coverage for these insureds. If there is no insurer willing to cover the large risk of the league, will the NFL continue on or are the consequences both physically and economically too strenuous for insurers to handle? The resulting denial of coverage for the NFL

could result in changes to the American tradition of football through actual changes in the largest professional sports organizations and also the way the game is played; with more safety measures for players in terms of protective headgear and constant concussion monitoring.

The mass amounts of all this uncertainty is where the excess and surplus lines industry can make an incredible difference by stepping up to place this tough sector of business. After all, the non-admitted market was created specifically for risks like CTE that are vastly unique at every angle. The non-admitted market prides itself on placing challenging risks that are denied coverage in the standard market. I believe the insurance industry will only observe the topic of CTE and head trauma in all ages of sports continue to increase and become an incredibly large and undesirable risk for the standard market in the near future. This market utilizes not only specialized carriers and agents, but also wholesale brokers, who are licensed to help the insured's place coverage. This would not be the first time a risk would exit the admitted market and find itself in the non-admitted market. For example catastrophe risks, like coastal property, typically this would be excluded in the standard market and if coverage did exist it would be a steep premium; in the E&S market many carriers will write this risk and offer competitive and fair premiums. By taking a risk that previously belonged in the standard marketplace and shifting it to the excess and surplus line market, it enables rates to be adequate, not excessive and not unfairly discriminatory.

### **XIII. Conclusion:**

The excess and surplus lines industry is necessary for organizations like the NFL, NCAA, and helmet manufacturers, to continue operating. The CTE shift from the standard admitted market to the excess and surplus non-admitted market has marked a massive, but vital transition for sports organizations at all levels. The NFL insurers are paying hundreds of millions in CTE

claim settlements, litigation expenses and negotiated deals to fund medical research and this price is only going to increase as more past players show symptoms of repeated head trauma. General liability insurers can no longer bear the burden of these large and extensive claims that will continue for decades as more players see the long term effects of CTE. The excess and surplus lines are the only industry with the capacity and financial ability to support these organizations and also have vast knowledge and expertise on underwriting for complex exposures like CTE. Using a combination of risk financing and risk control techniques, to reduce the frequency and severity of these CTE claims, organizations like the NFL can prosperously continue to evolve and thrive in American culture.

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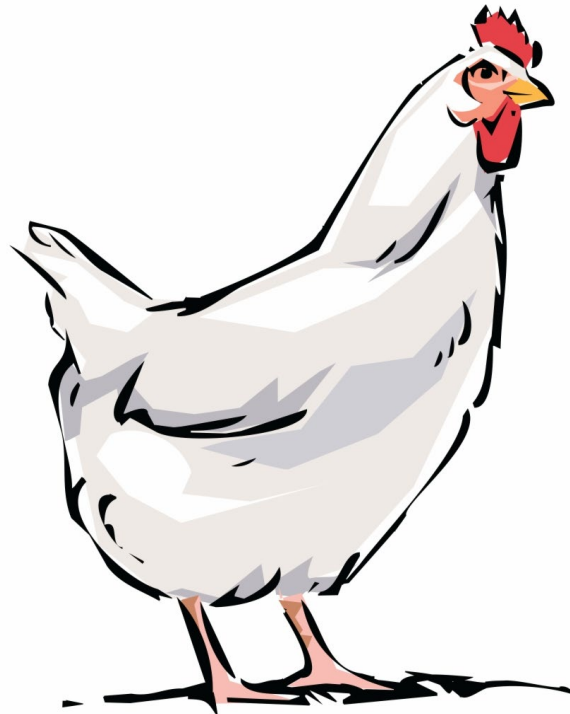
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Insure More Chicken

Tori Hastings

Temple University

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## **Introduction**

People consume 28.6 billion pounds of chicken each year, making it the most popular meat in America. Apart from chicken also being a traditional American favorite, fast food chains have had recent surges of popularity with the Popeye's Chicken Sandwich and KFC's new Fried Chicken and Doughnuts sandwich. Consequently, this makes chicken a high risk for a product recall. A recall is defined by the United States Department of Agriculture (USDA) as "a voluntary action conducted by a firm to remove adulterated or misbranded meat and poultry products from commerce." Meat contamination not only threatens the health and wellbeing of the consumer, but the reputation and business of the retailer, manufacturer, and insurance carriers. To prevent and lessen the severity of meat recalls, companies need to invest in the proper risk control measures and purchase the correct coverage. Hence, it is vital that ABC insurance expand their product recall coverage to include chicken.

## **Risk Exposures in Supply Chain**

The Centers for Disease Control and Prevention (CDC) estimated contaminated food affects about 48 million people every year. Meat recalls are the most common and have increased by 85% since 2013. The cause for meat recalls vary from undeclared allergens, foreign material contamination, listeria, salmonella, and more (Hein). In 2019 alone, there were 126 recalls due to undeclared allergens, 59 due to listeria, 48 due to foreign material contamination, 27 failed inspection requirements, 24 due to E.coli, and 24 due to Salmonella. Different risk

exposures during the process of animal slaughter, packaging, and consumption identify when the common causes for recalls may happen.

### ***Packaging and Labeling***

The main risks associated with the packaging and labeling of chicken are misbranding, adulteration, and mislabeling. In simple terms, misbranding is packaging deemed as misleading, if the amount on the package is different from the true amount, adulteration means nothing can touch the food during packaging unless it is legally allowed to, and mislabeling involves not addressing everything in the product being sold

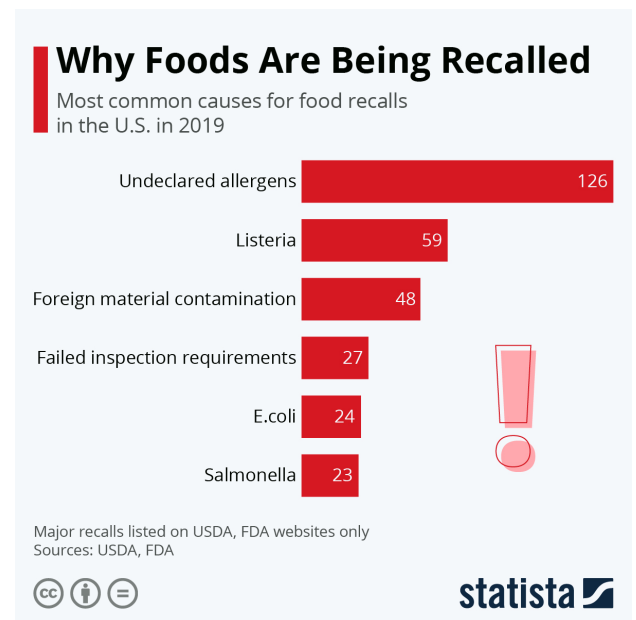
(Saxowsky). The reason why these mistakes happen are due to facilities and people hazards.

Equipment may not be completely sanitized or people can put the wrong label on a product.

There are many laws and regulations regarding this, such as, Nutritional Labeling and Education Act and Fair Packaging and Labeling Act. However, given undeclared allergens is the number one reason for food recalls, stricter inspections and risk control measures need to be taken.

### ***Fresh vs. Frozen***

Fresh chicken is the raw chicken purchased at the grocery store with the intention of being cooked within a few days, while frozen chicken is bought in the form of a quick meal or for longer lasting shelf life. Experts believe a part of the reason meat recalls have been spiking is due to the rise in demand of ready-to-serve meals, such as frozen chicken nuggets. Tyson Foods in January of 2019 recalled 12 million pounds of chicken strips due to possible metal fragments found in their food, serving as an example of the lack of inspection frozen food products are



going through. The metal detectors and X-ray machines used to inspect processed food “must allow for some level of metal and mineral content, which means screws and metal shavings from malfunctioning equipment can slip through” (Kindy). This poses a problem for processed meat companies like Tyson Foods because recalls involving frozen foods is becoming a large issue.

### ***Raw vs. cooked***

Unlike beef or seafood, chicken should never be eaten unless it is fully cooked. Raw chicken is often contaminated with salmonella or campylobacter bacteria that can make a person sick if consumed. Meat producers experience issues when salmonella outbreaks force a recall of their products. For example, in 2015, Aspen Foods had to recall 1.9 million pounds of their raw, frozen, stuffed chicken products due to linked cases of salmonella in their products that caused consumer hospitalizations. Even though salmonella recalls are not as common compared to undeclared allergens, raw meat handling and proper precautions should still be taken seriously by companies.

### ***COVID-19 Effects***

With COVID-19 currently taking up a lot of society's time and conversations, it's important to discuss the effects this virus could have on food recalls in the United States. It is rumored that the start of the coronavirus stems from the consumption of bat soup, which understandably might worry the public that the virus could be spread from food contamination. Currently, the CDC reassures “there is no evidence to support transmission of COVID-19 associated with food.” While this is good news, the coronavirus still causes supply chain interruption for the meat and poultry industry. Demand for meat is at an all time high right now, but manufacturers and retailers are running low on workers. A Smithfield Foods pork-processing facility in South Dakota had to shut down recently due to more than 200 employees with cases of

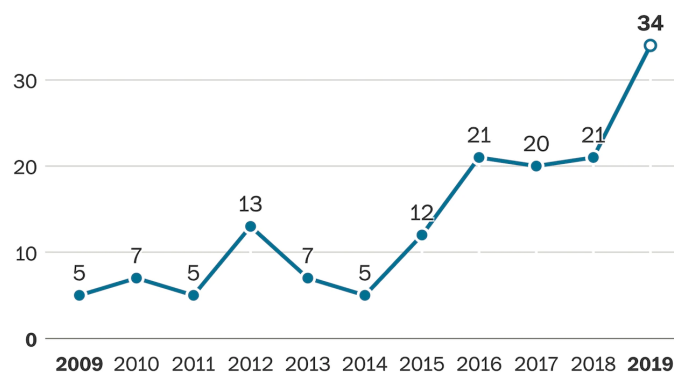
COVID-19. Additionally, some Tyson Food workers have already planned a walk out and refused to work due to the pandemic (Day and Almeida). This scarcity of workers poses a threat of a meat shortage in the United States. This situation may cause a rise of meat recalls in the U.S. because there are not as many workers to make sure meat is still safe and packaged correctly, food inspectors are not prioritizing inspections of facilities right now, and the FDA just approved temporary label relief regarding certain nutritional requirements (Staff). Consequently, COVID-19 will affect meat and poultry recalls and underwriters should remain updated on the progression.

### Severity and Frequency

For the past few years, there have been an increasing amount of meat and poultry recalls in the United States. From 2009 to 2018, the amount of meat and poultry recalls increased by about 83% (Ducharme). There were 34 reported cases of foreign object recalls in 2019, compared to 21 in 2018. While it's easy to understand the increasing frequency of meat recalls in the U.S., simplifying the severity they have on a company is more difficult. Calculating the physical cost of a recall is a daunting task because there are so many different factors to include, such as , liability costs, lost sales, volume of product, etc. Evidently, meat recalls can be a difficult risk to price. A recent study done by Kansas State University may make it a bit easier. They identified five factors that determine how severe a meat recall could really be to a

### Recalls are skyrocketing for meat products

Consumers are finding metal, plastic and other foreign objects in their food



Source: U.S. Department of Agriculture

KIMBERLY KINDY/THE WASHINGTON POST

company: firm's size, experience with recalls, recall size, perceived health risk severity on the public, and media coverage. If a firm is large, then they may be able to absorb the costs a bit easier and may not need as much insurance. Similarly, if a company has had experience with recalls, they have most likely learned from their mistakes and adapted new risk control measures to prevent another event. The larger the size of the recall, the harder it will be for a firm to recover. Next, there are three different classes of recalls: Class I is the most severe and considered the biggest health risk and Class II and III include instances such as undeclared allergens. Lastly, how much media coverage there is on a recall event affects the reputation of a company which could hurt future sales (News Desk). Many food companies are currently facing the reality of how underinsured and unprepared they are to financially combat the consequences of their meat and poultry recalls. ABC Insurance needs to include poultry recalls within their product recall lines because companies are underinsured and uneducated on utilizing insurance as a valuable risk transfer and avoidance method.

### **Opportunities**

The increased frequency and severity of poultry recall claims could pose a high risk for many insurers that don't have the proper funds or risk control tactics to manage them. However, by pricing the risk correctly, implementing great safety measures for food processors to follow, and continuously staying educated on the topic of meat recalls can show that this risk is a profitable investment for ABC insurance.

### ***Growing Market***

With poultry recalls becoming more frequent, the demand for insurance coverage has gone up. The Insurance Business Magazine discusses how the growing frequency of these recalls "have made risk managers and CFOs question whether they also need to explore their recall

exposure to ensure they have protected their balance sheet and have a clear understanding of how much risk they are potentially absorbing” (Olano). Many companies have decided that insurance is the right solution to transfer their immense amount of risk. As demand for this insurance product grows, underwriters have the ability to increase capacity and increase cost. Beyond that, poultry recalls should be looked at positively because “insurers tend to perceive recall risks as an attractive addition to their portfolios because of its short tail characteristics” (Harrison). Entering this growing market will prove as a valuable addition to ABC insurance product recall program and help protect poultry companies from going bankrupt.

### ***Investment***

Adding poultry to product recall lines will prove to be a great investment. There are arguably higher returns on riskier investments, and these additions to a carrier’s portfolio are what keeps the business alive. By taking on this unique risk and establishing a detailed plan to mitigate the supply chain loss exposures, carriers can help businesses control their losses while advancing their knowledge on approaching recall risks. By “insurers focus[ing] on understanding, supporting, and partnering with corporate clients on pre-crisis support” they are able to attain a higher return on equity, which is attractive to stockholders (Olano). Perfecting this approach will ultimately attract more business and retain stockholder investments.

Additionally, advancements in company and insurer technology to identify sources of food contamination in meat processing facilities shows promising evidence that the cost of a recall could be recovered. For example, pathogen testing methods such as “Whole Genome Testing (WGS), have significantly improved and more tests are being performed at every level of the supply chain” (Moorcraft). This is another reason to add poultry to ABC Insurance Product

Recall line because these advancements make establishing a loss exposure plan easier and lessens the probability of a catastrophic loss from happening.

### ***Expertise***

Underwriters and insurance brokers need to work together to become experts in the topic of meat recalls to guide their clients towards buying the proper coverage and establishing strict supply chain risk control. Underwriters have to act as experts in this field and educate food companies on why insurance is a valuable product to their industry. Most food companies do not understand the difference between product liability coverage and product recall coverage. This is a problem because companies may not understand that they only have coverage for customers injured by their product, not the expense associated with a recall. Therefore, insurance brokers need the rate and client expertise from the underwriter to sell this coverage to poultry companies. The more knowledgeable an underwriter is, the better a sell by the broker will go. Once this relationship is established, a risk control plan is required, which is important because “policyholders..benefit from lower premiums, while insurers are able to cut down on their costs associated with having to pay out claims” (Kagan). It is vital that insurers stay knowledgeable on new meat and poultry processing regulations or safety technology to make sure risk control measures are as safe as they can be.

### **Regulation and Technological Improvements for Safety**

There have been many technological improvements and new regulation laws passed in response to higher recorded foodborne illnesses in the United States. The FDA recently passed the Food Safety Modernization Act (FSMA) which ensures the safety of food supply by enacting stricter preventative actions during the supply chain process. There are seven major rules involved with this act which include Foreign Supplier Verification Programs, Laboratory

Accreditation, Mitigation Strategies to Protect Food Against Intentional Adulteration, and more (Center). FSMA is a good thing for insurers because it helps prevent a major loss happening within the meat and poultry industry. Additionally, the United States Department of Agriculture provides a list of new technologies focused on making food safer for consumers. These new technologies are defined as “new application of equipment, substances, methods, processes, or procedures affecting the slaughter of livestock and poultry or processing of meat, poultry, or egg products” (“FSIS”). The list includes different substances and methods used to clean and prepare meat from 2016 to 2019. These advancements in the supply chain are valuable to underwriters because they show the necessary steps being taken in agriculture to ensure food safety. Lastly, some companies have taken it upon themselves to apply a new supply chain approach to ensure the safety of their food by not involving third parties. Costco has decided to take on the risk of in-house poultry production “as a result of three primary drivers — surety of supply, visibility up the chain and cost control” (Devenyns). It is still early to tell if the benefits of this decision will outweigh the food safety and risk control costs, but remains a unique approach to supply chain concerns. New regulations, technologies, and supply chain methods are increasing food safety in this industry, making poultry recalls an attractive risk.

## **Conclusion**

Meat and poultry recalls have been more frequent the past few years, demonstrating the industry’s need for accessible insurance. The severity of these claims are complex and stem from different supply chain issues, such as packaging and labeling. A developing issue is COVID-9 and its effects on the meat and poultry supply chain. It’s important underwriters stay up to date on how this might affect food safety because rates may have to adjust. Nonetheless, adding

poultry recalls to ABC Insurance product recall line will make a great investment due to the growing market and advancements in methods and technologies of the supply chain.

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