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E. JASON WAMBSGANS/Tribune photo

## Chemicals in the crib

Testing for Tribune finds flame retardants linked to cancer in some popular baby mattresses, surprising and alarming scientists

BY PATRICIA CALLAHAN  
AND MICHAEL HAWTHORNE  
Tribune reporters

Three popular brands of baby mattresses that were marketed in recent months to families and day care centers contained toxic flame retardants linked to increased cancer risk, according to laboratory tests conducted for the Chicago Tribune.

One member of that family of chemicals, known collectively as chlorinated tris, was removed from children's pajamas over cancer concerns a generation ago.

Yet that same flame retardant turned up in significant amounts in 18 baby mattresses sold recently by national and local retailers under the Babies R Us, Foundations and Angeles brands. Two

other mattresses made by Angeles contained a related form of tris.

While furniture-makers often add flame retardants to the polyurethane foam cushioning in sofas and upholstered chairs, the test results on infant mattresses surprised and alarmed some scientists who have studied the chemicals. Babies spend 10 to 12 hours a day in a crib, and foam mattresses can meet federal fire-safety rules without the use of chemicals.

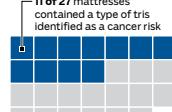
Linda Birnbaum, director of the federal government's National Institute of Environmental Health Sciences, said regulators had assured her that chlorinated tris and other toxic flame retardants weren't used in mattresses.

"These are bad chemicals, and we've

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### OUTCOME OF FLAME RETARDANT TESTS

Tests looked for chlorinated tris, one type of flame retardant



### Late 1970s

When this type of tris was voluntarily removed from children's pajamas in the U.S.

This accounted for at least 5% of the weight of the foam in 8 of 27 mattresses

SOURCES: Stat Analysis Corp., Tribune reporting

Tribune

Schwarzkopf, general in 1st Gulf War, dies

Known as "Stormin' Norman," he led U.S. troops and allied forces in a six-week war that routed Saddam Hussein's army from Kuwait in 1991. **Obituary** in Business, Page 7



GETTY-AFP PHOTO

### College football bowl preview

Heavyweights from Notre Dame and Alabama will go head-to-head in BCS title game. **Chicago Sports**

Homicides pushing 500 in Chicago

Chicagoland, Page 11

Readers strike back at critical 'Les Miz' review

Michael Phillips, Movies

## Bracing for hard landing off 'cliff'

Higher tax rates to kick in, benefits to end Tuesday if no deal reached in Washington

BY JIM PUZZANGHERA  
AND MARC LIFSHER  
Tribune Newspapers

WASHINGTON — If the nation goes over the fiscal "cliff" so Americans may wake up Tuesday with financial headaches to rival a New Year's hangover.

More than 2 million long-term jobless would receive their final unemployment benefit check within days. Millions of taxpayers would be unable to file their returns early, resulting in delayed refunds. Taxes would be immediately applied to workers across the board. And while some of those increases may eventually be reversed, the first paychecks of the year would be smaller until any legislative fixes kick in.

Even if the crisis is resolved quickly as pressure mounts on President Barack Obama and lawmakers, it poses a short-term economic headache for businesses. And it would be a financial blow to millions of people struggling to make ends meet in the aftermath of the Great Recession.

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President  
congressional  
leaders to meet  
Friday. **Page 19**

## The house wins if gaming grows, an analysis finds

Projections show casinos, not state, would benefit the most

BY BILL RUTHARTH  
Tribune reporter

In a state as broke as Illinois, it wouldn't be a stretch to assume that the push for aggressive gambling expansion — including a lavish Chicago casino — is all about the money.

But plans for five casinos and slots at six horse tracks would do more to maximize casino profits and generate tax revenue for local governments than to shore up the state's shaky bottom line, according to new fiscal projections provided to the Tribune.

The sweeping casino package vetoed by Gov. Pat Quinn was not destined to generate a major annual increase in gambling revenue for Illinois, according to estimates by the nonpartisan Commission on Government Forecasting and Accountability.

The projections showed the state's

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Tom Skilling's forecast High 34 Low 27

Chicago Weather Center: Complete forecast on back page of A+E section

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# Chemicals in the crib

Testing for Tribune finds flame retardants linked to cancer in some popular baby mattresses, surprising and alarming scientists

*Friday, December 28, 2012*

BY PATRICIA CALLAHAN AND MICHAEL HAWTHORNE

Three popular brands of baby mattresses that were marketed in recent months to families and day care centers contained toxic flame retardants linked to increased cancer risk, according to laboratory tests conducted for the Chicago Tribune.

One member of that family of chemicals, known collectively as chlorinated tris, was removed from children's pajamas over cancer concerns a generation ago.

Yet that same flame retardant turned up in significant amounts in 11 baby mattresses sold recently by national and local retailers under the Babies R Us, Foundations and Angeles brands. Two other mattresses made by Angeles contained a related form of tris.

While furniture-makers often add flame retardants to the polyurethane foam cushioning in sofas and upholstered chairs, the test results on infant mattresses surprised and alarmed some scientists who have studied the chemicals. Babies and even toddlers can spend 12 or more hours a day in a crib, and foam mattresses can meet federal fire-safety rules without the use of chemicals.

Linda Birnbaum, director of the federal government's National Institute of Environmental Health Sciences, said regulators had assured her that chlorinated tris and other toxic flame retardants weren't used in mattresses.

"These are bad chemicals, and we've known they've been bad for a long time," said Birnbaum, a toxicologist. "If these chemicals are in your child's mattress, they are going to be constantly exposed."

In the late 1970s, University of California at Berkeley scientists found that TDCPP, a form of tris, could cause mutations in DNA, and its manufacturer removed it voluntarily from the market for children's pajamas. When researchers look for flame retardants in house dust, they still find TDCPP, which was never banned.

The Tribune tested 27 mattresses. All of the mattresses containing chlorinated tris had one thing in common: labels saying they were made in China or imported from China. None of the tested mattresses made domestically contained significant amounts of any form of chlorinated tris.

The response to the test results from manufacturers, importers and retailers varied.

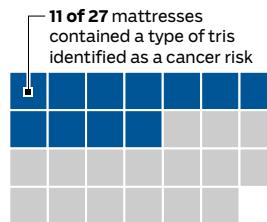
Wayfair, the retailer that fulfilled the Tribune's Wal-Mart order through the retail giant's online marketplace program, halted sales of the Angeles crib mattress, which fits cribs that are popular at child care centers.

One importer, however, vigorously defended its product.

Summer Infant Inc., the importer of the Babies R Us branded crib and bassinet mattresses that contained

## OUTCOME OF FLAME RETARDANT TESTS

Tests looked for chlorinated tris, one type of flame retardant



## Late 1970s

When this type of tris was voluntarily removed from children's pajamas in the U.S.

Tris accounted for at least 5% of the weight of the foam in  
**8 of 27** mattresses

SOURCES: Stat Analysis Corp., Tribune reporting



chlorinated tris, noted that the mattresses “are in a sealed impermeable plastic covering,” which “ensures no exposure of the inner mattress foam to the child.”

Responding to questions from the Tribune, the company wrote, “Simply put, the statements made are misleading and reckless in that they imply a health hazard that doesn’t actually exist.”

But Birnbaum and Heather Stapleton, a Duke University chemist who studies flame retardants, questioned whether any foam product can be sealed completely. They said chemicals escape when they vaporize and seep through seams or holes and get into air and dust.

And Inez Tenenbaum, chairman of the U.S. Consumer Product Safety Commission, stressed that she sees no need for flame retardants in children’s mattresses, which can be protected with inherently flame-resistant wraps or barriers.

“I strongly encourage all mattress manufacturers to comply with our performance standard through the use of barrier technologies and to avoid using any potentially harmful chemicals to which children can be exposed,” she said in a statement. “The law strictly prohibits children’s products from having hazardous chemicals that children could be exposed to and could foreseeably cause substantial illness or injury.”

The agency is awaiting approval from its federal safety commissioners for a broad study of children’s exposure to flame retardants in consumer products. Responding to the Tribune, agency officials last week began purchasing the same models tested by the Tribune for their own studies to determine how much chlorinated tris could escape and be absorbed through a baby’s skin, ingested or inhaled.

The findings from the testing commissioned by the Tribune echo those of a California environmental group. The Center for Environmental Health, in Oakland, hired a lab to conduct tests but did not release the precise results in announcing its findings earlier this month. Instead, that group is using a California labeling law and the threat of a lawsuit to prod companies to reformulate their products without tris.

Neither the Tribune nor the Center for Environmental Health knew that the other was testing baby mattresses.

Because they are smaller than adults and their bodies are still developing, children face greater risks from exposure to toxic chemicals, said Dr. Jerome Paulson, a George Washington University pediatrician.

Last year, Paulson wrote an American Academy of Pediatrics policy statement calling for a sweeping overhaul of the nation’s chemical safety law to protect children.

“We know these flame retardants are hazardous,” he said in an interview. “The fact that you found these chemicals in crib mattresses is evidence of an ongoing problem that we as a nation have been unwilling to confront.”

In May, the Tribune published its “Playing With Fire” series, which revealed how flame retardants are commonly found in American homes as a result of a decades-long campaign of deception by the tobacco and chemical industries. Among other things, the leading manufacturers of flame retardants created a phony consumer group that stoked the public’s fear of fire to protect and expand the use of their chemicals in furniture, electronics and other products.



E. JASON WAMBSGANS/Tribune photo  
A Chicago lab extracted foam from baby mattresses and tested it for flame retardants identified as a cancer risk.

Readers repeatedly asked Tribune reporters about mattresses, especially those for babies. Furniture-makers use flame-retardant foam to meet a California flammability rule that has become a de facto national standard. Mattresses are a different story. Instead of the California rule, they must pass federal fire-safety tests that are far more stringent.

A safety commission spokesman in September said his agency had never tested baby mattresses for chlorinated tris or other flame retardants that the Tribune spotlighted in "Playing With Fire." Federal flammability rules for mattresses were created "in a way so that manufacturers did not have to use flame retardant chemicals," spokesman Scott Wolfson said.

A 2011 study led by Duke's Stapleton found forms of chlorinated tris in six portable crib mattresses purchased between 2000 and 2008. That study did not name the brands, and most were made before the current fire-safety rules favoring barriers took effect.

To see what was in the mattresses sold today, the Tribune hired Stat Analysis Corp., a private Chicago analytical lab, to test popular brands used by consumers and child care centers.

The Tribune purchased the baby mattresses at major retailers, including Amazon.com, Babies R Us and Wal-Mart's online site. Stat Analysis performed the tests from October to December.

There are several kinds of flame retardants used in foam. Chemical manufacturers have said chlorinated tris is safe, but the Tribune chose to test for tris because

# Testing crib mattresses

Mattresses sold in the U.S. must pass strict flammability tests, but regulators say the standards can be met without adding flame retardant chemicals. The Tribune paid a laboratory to test a number of popular crib mattresses for chlorinated tris, a class of flame retardants linked to health risks. If a mattress tested positive, the Tribune bought related products from the same brand for further testing to see if there was a pattern. A negative result does not necessarily mean the mattress is free of other flame retardants.



## 3 TYPES OF TRIS

**TDCPP:** *Tris(1, 3-Dichloro-2-propyl) phosphate*

Labeled a cancer risk by the World Health Organization, the Consumer Product Safety Commission and other groups. Removed from children's pajamas in the 1970s.

**TCEP:** *Tris(2-Chloroethyl) phosphate*

Identified as a cancer risk decades ago by the National Toxicology Program. The states of Washington and New York have moved to regulate it in children's products.

**TCPP:** *Tris(2-Chloroisopropyl) phosphate*

Not adequately studied for health effects, according to a 2000 report from the National Research Council. Chemically similar to TCEP and TDCPP.

## MATTRESSES WITH A FORM OF TRIS parts per million

Brand	Model	Manufacture date	TDCPP	TCEP	TCPP	Percent tris by weight
Angeles	Angeles Compact Replacement Mattress	April 2012	45,000	None	5,400	5.0
Angeles	Angeles Compact Replacement Mattress	June 2011	None	None	5,700	0.6
Angeles	Angeles Compact Replacement Mattress	June 2011	None	None	5,100	0.5 %
Babies R Us	Bassinet Pad	July 2012	18,000	None	50,000	6.8
Babies R Us	Oval Bassinet Pad	June 2012	22,000	None	43,000	6.5
Babies R Us	Portable Crib Pad	May 2012	25,000	None	37,000	6.2
Babies R Us	Portable Crib Pad	May 2012	21,000	None	31,000	5.2
Foundations	Professional Series 2-inch Compact Crib Mattress	February 2012	44,000	6,700	6,200	5.7
Foundations	Professional Series 3-inch Compact Crib Mattress	June 2012	42,000	None	8,100	5.0
Foundations	DuraLoft 3-inch Compact Crib Mattress	May 2012	41,000	None	8,600	5.0
Foundations	Professional Series 4-inch Compact Crib Mattress	January 2012	42,000	None	6,300	4.8
Foundations	Professional Series 3-inch Full Size Crib Mattress	February 2012	37,000	None	5,900	4.3
Foundations	Professional Series 5-inch Full Size Crib Mattress	September 2011	21,000	2,000	5,000	2.8

SOURCES: Stat Analysis Corp., Tribune reporting

the science showing potential harm is well documented.

The World Health Organization, the National Cancer Institute, the National Research Council and the safety commission have identified TDCPP as a cancer risk. Safety commission researchers in 2006 cautioned that adding TDCPP to upholstered furniture could expose children in their first two years of life to a cancer risk seven times higher than what most scientists and regulators consider acceptable.

Decades ago, the National Toxicology Program found the second form of chlorinated tris, known as TCEP, to be a cancer risk. The state of Washington requires manufacturers to report to state regulators the use of TCEP in children's products, and a New York state ban on TCEP in products for young children will take effect in December 2013.

Less is known about the third form of chlorinated tris, known as TCPP. A 2000 report by the National Research Council concluded that TCPP had not been adequately studied for possible health effects. Eight years later, a risk assessment by the European Union concluded that the flame retardant is a possible cancer risk because it is chemically similar to TCEP and TDCPP.

When tests showed a mattress contained any form of chlorinated tris at levels that Stat Analysis considered above a trace amount, the Tribune bought sister products from the same brand and had them tested to see if there was any pattern.

An Angeles portable crib mattress manufactured in April 2012 and bought from Wal-Mart online earlier this month had the highest levels of TDCPP of any of the mattresses tested. Two other Angeles mattresses, both manufactured in June 2011, contained some TCPP but did not contain any TDCPP.

David Curry, a general manager at Angeles, said his company was conducting its own investigation and declined to comment further.

Wal-Mart noted that Wayfair stopped selling the Angeles mattress when informed of the Tribune's results.

"Some of our largest suppliers of baby products have already begun eliminating the use of flame retardants that appear on lists of chemicals of high concern," Wal-Mart spokeswoman Dianna Gee added in an email. "We encourage our suppliers, who have not done so, to evaluate the use of chemicals of concern in advance of regulation."

Foundations cribs, which are sold with the company's mattresses, are "used in more hotels and child care facilities worldwide than any other brand of cribs," according to its website. For testing, the Tribune bought six different Foundations mattresses, and all contained TDCPP and TCPP.

Two of them also contained TCEP. However, foam samples taken from a different location in one of those mattresses did not contain TCEP, the lab found. It is possible that chemical levels will vary within foam if they're not mixed properly or if flame retardant residue from one batch of foam contaminates the next, according to experts.

The Foundations mattresses that were tested came from Amazon.com. Amazon continues to sell those mattresses, but its listings now include a "click here" link

#### CRIB MATTRESSES WITH NO TRIS OR TRACE AMOUNTS

By brand

- Colgate Classica II Extra Firm Crib Mattress
- Baby Cache Sweet Dreams Comfort 2 Stage Infant-Toddler Mattress
- Serta Master Sleeper by La Jobi Dual Sided Mattress
- Sealy Signature Soybean EverEdge Foam-Core Crib and Toddler Bed Mattress
- Simmons Kids BeautySleep Superior Rest 2 'n' 1 Innerspring Mattress
- Simmons Kids SlumberTime Naturally 2 'n' 1 Convertible Mattress
- Little Dreamer by Moonlight Slumber
- Dream on Me Orthopedic Firm Foam Crib Mattress
- Colgate 3-inch Portable Crib Mattress
- Cub Club Crib Mattress & Accessory Pad
- Simmons Kids BeautySleep Portable and Day Care Crib Foam Mattress
- L.A. Baby 3-inch Compact Crib Mattress
- Naturepedic Organic Cotton Element Lightweight Infant & Toddler Mattress
- Kolcraft Good Night, Baby Crib & Toddler Bed Mattress

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for California residents that takes consumers to a page that says, “WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.”

A spokesman for the retailer said in an email: “We require our vendors and third party sellers to comply with all applicable laws and regulations.”

The Tribune sent lab test reports and product details to officials at Foundations, but they did not respond to phone calls or emails seeking comment.

The company did, however, briefly post a statement on its website saying it had received assurances from its suppliers that its mattresses were free of TDCPP.

In that statement, which Foundations later removed, the company said the Center for Environmental Health alleged that some Foundations products contained TDCPP and required warnings under California law.

“Foundations has begun testing to ascertain whether TDCPP, contrary to the assurances it received, was or is present in any of its products,” Foundations wrote on its website. “Second, the company will confirm and ensure that no new production contains TDCPP.”

In the meantime, the company said it was adding warning labels to products shipped to California and asked retailers selling to customers in that state to add the labels “out of an abundance of caution.”

On Oct. 28, California started requiring warnings on products sold in that state if the products could expose people to harmful amounts of TDCPP.

California’s Center for Environmental Health found TDCPP in Foundations and Angeles crib mattresses and in a Babies R Us bassinet pad. The center did not test for TCEP, which also can trigger warning requirements under California law, or TCPP.

All four Babies R Us branded mattresses purchased by the Tribune — two products made for portable cribs and two for bassinets — contained TDCPP and TCPP, Stat Analysis found. Babies R Us continued to sell those kinds of mattresses: One of the chain’s stores in Niles had them on its shelves Thursday.

Jennifer Albano, a spokeswoman for Toys R Us Inc., which owns the Babies R Us chain, said all products in its stores meet or exceed applicable laws, including flammability standards.

“As always, we will continue to monitor any emerging product safety concerns and to work with our suppliers to identify new ways to raise the bar on the safety of the products sold in our stores,” Albano wrote in an email.

Summer Infant, the importer of those Babies R Us branded mattresses, in a written statement faulted the Tribune for analyzing the chemical content of the foam



E. JASON WAMBSGANS/Tribune photo  
Mattress samples are prepared for testing to see if they contain flame retardants linked to increased cancer risk.



E. JASON WAMBSGANS/Tribune photo  
At a Chicago lab, a foam sample is cut from a baby mattress. The tested mattresses were bought from major retailers.

inside a product rather than “risk assessment models” that look at whether a consumer is exposed.

The company wrote that its products comply with all safety commission regulations and that “there is no hazardous exposure to the cited flame retardants.”

“Summer Infant’s top priority in manufacturing juvenile products is the health and safety of every child,” the company wrote.

Stapleton, the Duke University chemist who led the largest study of flame retardants in baby products, offered a different take on the permeability of mattresses. She said chemicals like TDCPP can escape from products such as mattresses any time air moves through them. A truly sealed mattress would pop like a balloon when compressed, she said.

“Can you push your hand down on it, and does air escape?” Stapleton asked. “There’s no such thing as hermetically sealed if you have air coming out.”

Summer Infant mattresses had seams with visible stitches and had ends covered with overlapped fabric. A reporter was able to stick her finger between the overlapped plastic and touch foam. Though it’s unlikely a baby would ever reach into that space, air can escape through it.

The Foundations mattresses also had visible stitching, and one had similar overlapped fabric. In contrast, the Angeles mattresses had no obvious stitching or gaps. But all of the mattresses could be compressed with little pressure before springing back to their original shape.

Measuring a child’s exposure to chemicals in a mattress is complicated. The safety commission’s proposed testing would apply 100,000 cycles of pressure over 24 hours to represent years of use, while sampling the air above.

To simulate bed-wetting and sweating, agency scientists plan to apply wet fabric to see what chemicals wick out of the mattress, agency spokesman Wolfson said.

“Once a thorough assessment of risk is completed, scientists can estimate the likelihood of a child experiencing any adverse effects,” the agency said in a written statement.