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Making Airspace Your Space

MORE THAN 100 years ago, a Benoist XIV biplane delivered a lone passenger across Florida's Tampa Bay, cutting what was then a day's journey down to a matter of minutes. The first scheduled passenger airline service set the stage for a century of innovation, triumph, and tragedy—a lightning rod for the national imagination and a monument to human progress.

But as air travel has evolved to tackle the realities of the 21st-century marketplace, a sector that once stood for convenience, efficiency, and even glamour has now become a symbol of precisely the opposite qualities for many consumers. This month Consumer Reports is giving you a window-seat view of how passenger air travel arrived at the state it's in today.

Of course, we'll also present you with solutions, including recommendations so that you and your family can have a saner, safer, cheaper flying experience. Additionally, we'll provide you with other steps that you can take to exercise your power as a consumer to restore a bit of consumer-friendliness to the friendly skies. With prices rising, leg room disappearing, lines lengthening,



Marta L. Tellado,
President and CEO
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**We give you
recommendations
so that you and
your family can have
a saner, safer, cheaper
flying experience.**

and extra fees mounting up, there's a lot to worry about in air travel today. In Consumer Reports, you have a partner working to equip you with everything you need to navigate the skies with savvy and help set the industry on a course that once again listens to consumer needs.



Watch Our Stories Leap off the Page

In this issue you'll have the chance to see some of our articles in another dimension with the Blipper app. Blipper brings bonus Consumer Reports features to your smartphone or tablet, allowing you to shop for the products we recommend, and view videos and other highlights that will enhance your experience with the magazine. (Need help? Go to ConsumerReports.org/blipper)

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YOUR FEEDBACK

READERS' COMMENTS ABOUT OUR CONTENT, IN EMAIL AND SOCIAL MEDIA



The High Cost of College

"Lives on Hold" (August 2016), our in-depth examination of how education debt is affecting today's students and recent grads, drew well over 1,000 varied and thoughtful responses via letters, email, ConsumerReports.org posts, and social media. Here is a sampling. Go to ConsumerReports.org/studentdebt to read more and join the conversation.

THE ORIGIN of the student debt crisis is obvious—we did it to our children. In our eagerness to cut our own taxes we drastically reduced our support for higher education in our states. This caused our colleges and universities to raise tuition to cover the shortfall in state support. As tuition rose above the availability of financial aid, students wanting an education had no choice but to borrow. We often talk about wanting our children to have a better life than we did, but they won't. Because of our unwillingness to support their educations with our taxes we are condemning our children and grandchildren to a more difficult life and world than most of us faced. —Daniel Gruber, Paradise Valley, AZ

IT OCCURS TO ME that the students took many classes except the one they should have taken: Personal Finance 101. How do they claim to have a "complete education" when they never seemed to have bothered to sit down and figure out how large a salary they were going to

have to make to pay back such huge debts? —Scott Gross, Shingle Springs, CA

BECOMING FINANCIALLY INDEPENDENT today is a lot more complicated than it used to be. Thirty years ago graduating from college was an almost surefire path to, at minimum, the middle class. Today, college is a speculation. —Thomas Walsh, via ConsumerReports.org

Student loans are no joke, but I am glad that I get paid a decent salary instead of making a minimum-wage \$9 an hour. That's what I would have made if I hadn't gone to college. —Marcus Edwards, via Facebook

EXACTLY HOW DOES our country survive when everyone goes to college? Where will we find the skilled tradesmen and women who actually build America and keep it running? Who will staff our enormous and vital service industries? There are millions of Americans gainfully employed in good jobs for which a college education would be a complete waste of time and money. —Guy Robert, Beaufort, NC

THERE'S NO MENTION in your story of the primary contributor to higher education cost: the explosion of administrative positions, which has vastly outpaced the growth in the number of students or faculty. Colleges and universities receive tuition money from students without any incentives or pressure to reduce the cost. They must bear some of the risk of burdening their students with their profligacy. —James Kirwin, Dobson, NC

I prefer an educated populace. Why should we punish those who want to get an education? When I was of college age, student loans came with very low interest rates for a reason. Now our country values big business over education. That's just so sad and will cost us in the long run. —Patricia Lupe Priest, via Facebook

I HAVE a bachelor's and master's. I've worked for nonprofits. Went to school to be a teacher but haven't found a job in that field. People who service the community are not going to make huge salaries. It's not enough to feasibly pay student loans and living expenses, even when you are being frugal and careful. Yet, those very jobs, such as teaching, require a degree and certification! —Rachel Anderson Deer, via ConsumerReports.org

I DON'T THINK it's realistic to encourage young people not to attend college. Students can cut their indebtedness dramatically by doing what everyone whose parents couldn't pay for their education did when I was in college. Invest serious time into looking for scholarships. Don't own a car. Live in a dorm or share a room. Opt for the school meal plan or cook simple foods yourself. Don't ever use borrowed money to pay for entertainment. Buy all your necessities, including computer equipment, used. —Carol Siegel, Portland, OR

I make damn good money but live on a food stamp budget thanks to student loans. —Boe Jielski, via Facebook

THE PURPOSE of higher education is not to make more money. It is to acquire learning, to become educated. And it is also possible that you will earn more. —Robert McNaughton, via ConsumerReports.org

Before you judge: Do you know that my one year of college costs \$14,000? Do you know that minimum wage jobs only make \$15,080 (40 hours a week, 52 weeks a year) before taxes? Add rent, food, electricity, blah blah. Not to mention that a full-time job is nearly impossible with student schedules. Could you do it in my situation? —Alice May Wasick, via Facebook

"I KIND OF ruined my life by going to college" made my blood boil. It was not going to college that ruined most students' lives. They did that job themselves in about seventh grade when they decided math was not important.

CONSUMER REPORTS ANNUAL MEETING

The meeting will be at 5 p.m. Thursday, Oct. 13, in New York, N.Y. Go to ConsumerReports.org/annualmeeting for details.

There are many, many jobs available for those with degrees in the sciences, engineering, or my field, economics. But students who pile up \$100,000 in debt for a degree in interpretive dance have created their own problems.
—Tony Lima, Ph.D., professor emeritus of economics, California State University, East Bay, Hayward, CA

I DIDN'T GO to college because I didn't do well in high school and didn't want to waste my parents' money. So I became a tractor-trailer driver and then completed an electrical apprenticeship. I have always been able to make a good living with zero college expenses.
—Matt Kane, via ConsumerReports.org

MANY COLLEGES are required by their accrediting agency to present percentage graduating and annual earnings after college for different majors. With this information, students can know their probability of graduating and what they can expect to earn. This can help them decide, which in turn can help them decide whether or not assuming debt is a good investment.
—Marshall Kagan, Victorville, CA

EDITOR'S NOTE Although it's true that colleges are required to report graduation rates, it's the Department of Education that publishes earnings information on its College Scorecard site (collegescorecard.ed.gov). The annual earnings aren't broken down by major, but students can use the College Scorecard to compare schools by a variety of criteria, including graduation rates, 10-year-out median salaries of graduates who received federal aid, and loan repayment rates after graduation.

f I love it when the boomer generation, with their mortgages long paid off and eyeing comfortable retirements, feel obligated to lecture us younger generations on financial responsibility. I graduated from high school in the early 1990s. We've been occupying the Mideast practically nonstop since then, wages are stagnant, college tuition (even state college) is horrendously expensive, and student interest rates (even for federally backed loans) keep us on a repayment treadmill. I delayed childbearing till age 40, we live in a \$130K house, we drive 10-year-old vehicles, we don't drink Starbucks, we don't have cable TV. We're not demanding student loan debt forgiveness, we just want reasonable financing. My generation is dealing with a whole different economy than our parents' generation did. And struggling with student loan debt that earlier generations don't seem to understand.

—Jody Bailey, via Facebook

I'VE TOLD ANY NUMBER of students that I want to drive a Lamborghini, but I can't afford one of those, either, and the parallel baffles them.
—David D. Schrager, J.D., Ph.D., Pembroke Pines, FL

THE KEY THING that has been missing from the student loan debt conversation is the stratospheric rise in college tuition costs and why nobody seems to be asking colleges to be accountable for the value they provide for cost. A good private liberal-arts college, such as the one I attended in the early 1980s, cost about \$9,000 per year. Today that same school costs between \$45,000 and \$50,000 per year.
—Hedda Schupak, King of Prussia, PA

I'D LIKE TO ADD another piece of advice to parents: Purchase an affordable term life insurance policy on your student that covers the total amount of the loans. (**EDITOR'S NOTE** That applies to cosigners of private student loans, not federal loans.) We had heard horror stories about parents who, after the tragedy of losing their son or daughter to accident or illness, learned that they were now saddled with all that additional debt. A term life policy on a healthy young adult is very affordable (ours is about \$100 per year) and protects your retirement savings from the addition of all that debt.
—Kim Connolly, via ConsumerReports.org

EVERYONE WANTS TO go to an Ivy League school, but no one wants to live frugally after college to pay off their loans. I finished my bachelor's and had a loan of about half of the annual income I could expect in the first few years of my career. My husband and I took almost eight years to pay off our combined loans. We lived very frugally and are now debt-free. It is possible. But the choices that need to be made to make it possible are unpopular.
—Monique Reynolds Smith, via ConsumerReports.org

WHY WOULD A PERSON make a serious investment like this without some assurance that there will be a return on the investment? The business world deals with this dynamic on a regular basis. A business can't afford to hire people, buy machines, or incur debt to expand unless there is an expectation of profits over a reasonable period of time. Our schooling and occupations are very important to all of us and merit this kind of businesslike strategic thinking.
—Terry Kuenzi, Salem, OR



WRITE

Go to ConsumerReports.org/lettertoeditor to share your comments for publication.

Something New Is Coming!

What is it? When will it happen?

Starting with the next issue of the magazine—and on ConsumerReports.org—you'll begin to notice some visual changes that will modernize our look and make it easier for you to use our trusted information. That includes a new logo, new colors, and new Ratings design.

Why is it changing?

Over the decades, Consumer Reports has always evolved to respond to the way consumers live. That's so we can always be your trusted and relevant partner as you navigate a complicated marketplace.

Will I like it?

We hope so. We got lots of feedback from consumers like you first, and we believe you'll appreciate the improvements.

I hope not everything will change ...?

It won't. Our core values never will. We will never compromise our independence. We will never sacrifice substance for style. We will never deliver anything short of excellence in testing and reporting.

Can I let you know what I think?

Nothing would make us happier! We count on your insights to help us safeguard and empower consumers. So be on the lookout for more ways to connect and communicate with us.

BUILDING A BETTER WORLD, TOGETHER

JOIN WITH US TO MAKE A SAFER, HEALTHIER MARKETPLACE



TAKING THE PAIN OUT OF PAYDAY LOANS

CONSUMER REPORTS has been working with the Consumer Financial Protection Bureau (CFPB) to protect people from the unfair practices of payday lenders. Their short-term loans, reported to be a \$46 billion industry, offer quick access to money—generally \$500 or less—and usually require repayment on a person’s next payday. But with unaffordable terms (such as interest rates of 300 percent or more), the loans can trap unsuspecting borrowers in a cycle of debt.

According to the CFPB, most consumers who take out payday loans can’t afford to repay them. What’s more, lenders often repeatedly attempt to debit the bank accounts of borrowers, which can cause overdraft fees. Half of borrowers from online payday lenders have

been charged, on average, \$185 in penalties per loan.

We’ve been pushing for tougher standards, and the CFPB recently proposed new rules for payday lenders as well as for those offering auto-title and other high-cost loans. Companies would have to make sure that borrowers are able to pay off their loans, factoring in a cushion so that they can also afford basic expenses. Lenders would be barred from repeatedly debiting bank accounts as well. After a public comment period, the CFPB will work to finalize those rules.

The proposal has great potential, but we’re concerned that it contains some loopholes and exemptions that may still permit risky lending practices.

“We look forward to working with the agency to finalize rules that require sensible underwriting, promote fair pricing, and add safeguards to prevent repeat borrowing,” says Suzanne Martindale, staff attorney for Consumers Union, our policy and mobilization arm. ConsumerReports.org/payday has more of our coverage on this issue.

DRUG-FREE CHICKEN ON YOUR PIZZA

PIZZA HUT is the latest agent for change in the fight against the overuse of antibiotics. By April 1, 2017, it will no longer top pizza with chicken raised on antibiotics that are important in human medicine.

About half of the antibiotics produced globally are used to promote growth and prevent—not treat—disease in food animals. This overuse can cause resistant bacteria to spread through our environment. A new report from the United Kingdom states that by 2050, that could lead to the death of 10 million people per year.

We’re meeting with members of Congress about legislation to reduce antibiotic use in animals and have asked the White House to push for improved data on the use of the drugs on farms. We’ll keep you posted.

MAKING OUR IDEAS HEARD

ONE IDEA can shape a life. But if you share that idea, you might be able to change many lives.

In June, representatives from Consumer Reports attended the Aspen Ideas Festival and spoke out on behalf of consumers on a number of critical issues in talks with industry and advocacy leaders.

At the top of the list was education debt, a pain point for millions of Americans. The broken system leaves families and young people with crushing debt while providing the industry with handsome profits. Marta L. Tellado, our president and CEO, led a discussion over lunch in which she reinforced that “we’re at a tipping point where the path to upward mobility is being questioned.” To read more, see our August 2016 cover story or go to ConsumerReports.org/studentdebt.

The pharmaceutical industry is another one that’s built to offer relief but causes great pain. Lisa Gill, who leads our Best Buy Drugs initiative, took part in an in-depth discussion about high prices that put lifesaving medications out of reach for countless people. (Go to ConsumerReports.org/highdrugprices or see our August 2016 article.)

And Urvasi Rangan, Ph.D., our director of consumer safety and sustainability, moderated a panel on food labels that included executives from Campbell Soup and Whole Foods. She advocated for more transparency to better serve consumers who want to know more about what’s in their food. To read more about our efforts, go to ConsumersUnion.org.

INSIGHTS

NOTABLE NEWS & SMART SOLUTIONS

Put a Lid on It

Want a home-cooked meal in a hurry? Today's pressure cookers promise to be safer and speedier. We put them to the test.

by *Kimberly Janeway*

THE PRESSURE COOKER is sublime in its simplicity: The metal pot's tight-fitting lid seals shut when liquids inside heat up and steam is trapped. The claim is that this speeds up cooking time yet turns out moist food—think short ribs, pulled chicken, pot roast, and even risotto.

Models of yore tended to rattle and sometimes explode, spraying kitchen walls with what was supposed to be

dinner. But today's cookers have improved safety mechanisms to keep the pressure from getting dangerously high.

We bought and evaluated five new pressure cookers—both stovetop and electric models—costing \$20 to \$200. We looked at how quickly each came up to cooking pressure under different conditions and how long each took to cook chicken and white rice, brown rice, and dry black beans.

All proved speedier than regular range cooking. In general, the stovetop models were faster than the electric models, but they can still be noisy and require you to manually adjust the heat level. Electric models took longer to reach cooking pressure but were quieter and needed less attention. Some offer delayed start and keep-warm features.

The fastest was the \$200 Fissler Vitaquick, the only

one to score Excellent overall. It's a stainless steel stovetop cooker with a gentle setting for fish and a speed setting for meats and stews. The Philippe Richard TTU19554 scored Very Good and costs just \$20. The best electric model, the \$100 Fagor Premium 6 Quart Pressure & Rice Cooker, scored Very Good. For more Ratings, go to [ConsumerReports.org/kitchen-appliances/electric-vs-stovetop-pressure-cooker](https://www.consumerreports.org/kitchen-appliances/electric-vs-stovetop-pressure-cooker)

NOW THAT'S FAST FOOD!

The Fissler Vitaquick 6-quart stovetop pressure cooker was swiftest of all.

RATING ●



Out of This World

How virtual reality is making it possible to have wild and wonderful adventures without ever leaving your living room

by Terry Sullivan

EVER WONDERED what it would be like to swim with sharks, perform before thousands of cheering fans, or walk on the moon? Virtual reality (VR) can make those Walter Mitty musings seem remarkably real. All you need is your smartphone and a viewer as basic as the \$15 Google Cardboard. Or you could spend

\$600 on a state-of-the-art, gamer-friendly Oculus Rift. Watching VR videos on those devices is like being immersed in the action: Turn your head from side to side or up and down, and the view changes just as it would in real life.

Like any nascent technology, VR still has some bugs. There's a big gap in quality between

the Oculus Rift and HTC Vive, which require a powerful—and usually pricey—computer, and the Google Cardboard, which borrows its processing power from your smartphone. Even with the expensive gear, the picture sometimes lags. Still, the overall experience can seem so vivid that consumers are projected to buy about

13 million VR headsets this year. The selection of VR videos is rapidly increasing. You may have to do a Google search to see whether you need a downloadable app from a VR content company. Many can also be found in a search on YouTube. Here are a few examples that opened our eyes—literally—to VR's very real possibilities.



WILDLIFE ADVENTURE

MythBusters: Shark Shipwreck and Sharks Everywhere!

Free on Google Cardboard, Oculus Rift, and Samsung Gear VR apps.

One of the appeals of virtual reality is that it allows you to visit dangerous places without putting yourself in danger. This pair of 4-minute videos takes you underwater, on a shark-infested dive to a shipwreck in the Bahamas. Everywhere you turn, it seems, you see the fins of reef sharks. The video is not as clear as could be, but the slow, rhythmic movements of the prehistoric predators, the decaying ship carcass, and the sound of gurgling scuba bubbles make for a journey captivating enough to have logged more than 12 million views on YouTube.



MUSIC

Paul McCartney, Live and Let Die

Free on Google Cardboard, HTC Vive, and Oculus Rift apps. Coming soon to PlayStation VR.

This 4-minute video lets you share the stage with the Beatles legend for a performance at San Francisco's Candlestick Park. As McCartney dives into the first verse of his James Bond theme song, you're standing a few feet from his piano. Turn your head to the right and you see drummer Abe Laboriel Jr., prompting the crowd to sing along. Turn toward the audience and you catch the flickering lights from the many cell-phone cameras recording the scene. Each time McCartney dips into the chorus, you get an up close look at the fireworks and flames that erupt around him.



ART

Dreams of Dalí

Free on Google Cardboard app.

Art critic Robert Hughes wrote that surrealist painter Salvador Dalí "was obsessed by the power of cinema to make dreams immediate." There's an unmistakable dreamlike quality to this 5-minute video, which lets viewers fly through the ancient ruins of Dalí's mid-1930s "Archeological Reminiscence of Millet's 'Angelus.'" Once inside the painting, you can spy on its elephantlike inhabitants and climb one of the two massive stone towers. Trippy, Beatles-esque background music adds another layer of Dalí intrigue.



DOCUMENTARY

6x9: An Immersive Experience of Solitary Confinement

Free on Google Cardboard and Samsung Gear VR apps.

At any time, roughly 80,000 people in the U.S. are held in solitary confinement. This documentary gives you an idea of their plight by immersing you in a spartan 6x9-foot cell. Though the video is only 9 minutes long, changes in light and the sounds of closing doors, dripping water, and talking prison guards create a sense of time passing. Audio amplifies the visceral, disturbing nature of the visuals: Six men and one woman who have experienced solitary confinement describe the toll that it takes, and psychologists share professional insights on that form of punishment.

HISTORY

Apollo 11 Experience

\$10 on HTC Vive, Oculus Rift, and PlayStation VR apps.

In this visually stunning and emotionally moving experience, you get to ride in Apollo 11 with Neil Armstrong and Buzz Aldrin on their 1969 mission to the moon. Peak moments include watching the sun's light rake over the lunar surface, bringing its craters into high relief; walking and jumping in the weightless environment; and even taking the controls of the spacecraft. Sound clips from the mission combined with computer animation help provide a profound sense of actually being with the astronauts and in space.





HEALTH

Perfect Beach

\$3 on Google Cardboard and Samsung Gear VR apps.

This beautifully produced app lets you escape to the beach without fighting traffic or getting sand in your swimsuit. Just don a pair of VR goggles and choose sand or pier, high noon or sunset. You can chill out even more with guided meditation or just lie back and listen to the sound of the crashing waves and the cries of seagulls. There's even a radio that plays mellow music, and according to the app's website, you can import your own songs, podcasts, and meditation sessions via a smartphone.



AMUSEMENT

Six Flags' VR Roller Coasters

Free with park admission on Samsung Gear VR app.

Want to take your next roller coaster experience to even greater heights? At nine of the Six Flags amusement parks, you board a roller coaster, don a Samsung Gear VR and watch a computer-generated video synced to your real-life ride—dips, climbs, and all. When the VR craft you're piloting plunges 90 feet, so do you—so there's nothing virtual about the feeling of your stomach leaping to your throat. The twists and turns are very real, but there are no sound effects to match the visuals. Still, the added visceral element more than makes up for the lack of soundtrack.



SPORTS

NextVR

Free on Samsung Gear VR app.

NextVR brings viewers the best (virtual) seats in the house, broadcasting live action from sporting events such as the Daytona 500 and the Masters Golf Tournament to your VR headset via a smartphone app. We haven't had a chance to try it, but early reviews are encouraging, even the one that compared the pixel-heavy experience to watching through a screen door.



WATCH

To see Consumer Reports' VR videos, go to ConsumerReports.org/360video

Can Virtual Reality Make You Sick?

From nausea to pain relief, the effects of virtual reality on health are still being investigated

After exploring the surface of the moon in an Oculus Rift headset, I wrestled with a bout of nausea that lasted a few hours. (Next time, I'll be sure to follow the manufacturer's advice and take a 10-minute break after every half-hour of play.) This "simulator sickness"—similar to motion sickness—is a fairly common side effect caused by the brain's struggle to square what you see with what you feel.

When I leap and soar in real life, my brain gets vestibular feedback from my inner ears. But in virtual reality, that feedback is absent. That's why VR companies are

rushing to fine-tune the motion tracking in their headsets and are even considering installing electrodes inside the devices to stimulate the brain. The military uses such electrodes to keep fighter pilots from getting sick in simulators.

For some users, the hefty headsets can cause pressure on the nose or cheeks. And then, of course, there's always the risk of tripping over a coffee table while you're off exploring the far reaches of the universe. That's why many VR games put you in a seated position. To be safe, you might want to have a

spotter with you before you cover your eyes with the goggles and make the leap into virtual space.

VR's immersive, role-playing prowess has been used to treat people suffering from depression and post-traumatic stress disorder. According to psychology professor Jim Blascovich, co-author of "Infinite Reality: The Hidden Blueprint of Our Virtual Lives" (William Morrow Paperbacks, 2012), it may be powerful enough to distract even young burn victims and significantly reduce their pain.

In fact, researchers are studying VR's strong pull on

the psyche to see whether it could be addictive. Stanford University psychiatrist Elias Aboujaoude, author of "Virtually You: The Dangerous Powers of the E-Personality" (W.W. Norton & Co., 2012), says it's too soon to say. "We would all do well to approach VR with a certain degree of caution," he adds. "As something to be enjoyed in measured doses, not something to get lost in."

Until more is known, be sure to pause for those 10-minute breaks, and if you find yourself feeling nauseated, refrain from driving, cycling, or operating heavy machinery.

—Terry Sullivan



ASK OUR EXPERTS

I like to keep my gas tank full in case of traffic tie-ups, but is it bad for the engine not to let the old gas get used up first?

GASOLINE DOES LOSE OCTANE gradually over time, and old gas sitting in your tank for two months or longer can create residues, but for a car that's used regularly, that isn't a problem, says John Ibbotson, chief mechanic at Consumer Reports' Auto Test Center. "The new gas will mix with what's already in your tank, and any variance in the octane will be adjusted for automatically by your car's engine computer." The octane

levels in old gas could be a concern only if you're storing your car for six months or longer, in which case you can add a gasoline additive (or stabilizer) to preserve it.

And to further help keep your engine clean, consider using a higher grade fuel called Top Tier detergent gasoline, which contains more additives than currently required by the Environmental Protection Agency. Based on recent testing conducted by AAA, Top Tier gas can reduce engine deposits and even clean an engine that has been running on cheap gas. Retailers include corporate giants BP, Chevron, Exxon-Mobil, and Shell, as well as many regional brands. Go to ConsumerReports.org/fuel for a list of Top Tier brands and retailers.



LEARN

We have more than 140 in-house experts who research, test, and compare—so you don't have to! Send your questions to: ConsumerReports.org/askouexperts ... and watch this space for the answers.

My WiFi doesn't work in some parts of my house. Is there a way to fix it?

"**INCONSISTENT COVERAGE** has long been a shortcoming of wireless routers, but a newer model may help. Manufacturers have recently made big strides in addressing this issue," says Rich Fisco, Consumer Reports' test program leader for computers and telecommunications. Today's router models can handle 20 or more mobile devices, and thanks to the 802.11ac WiFi standard adopted in 2013, they're able to "beamform," or detect where each device is located and push a stronger "smart signal" where needed. If you live in a home large enough to have dead spots, you might also want to consider adding a device called a WiFi range extender, \$20 to \$100. It works with your router to push your WiFi coverage into the farthest corners of your house—or even into the yard. But the devices can be tricky to set up. An easier solution is a system like Eero, which links multiple router units together to create a "mesh network" and eliminate

dead spots. The networks offer other advantages, such as automatic software updates, but they are generally pricey. The Eero costs \$500 for a set of three routers.

I got ink on the sleeve of one of my favorite shirts. Can it be saved?

REMOVING A BALLPOINT ink stain is surprisingly easy if you catch it early enough. You'll need Amodex, our top-rated stain remover (\$14 for a 4-ounce bottle at Amazon.com). Lay paper towels under the garment and work a small amount of Amodex into the affected area using an old toothbrush or by rubbing the stained section of clothing against itself. Blot with a white cloth. When most of the ink is gone, give the garment a quick rinse and the remainder should come right out. In a pinch, you can try using a little rubbing alcohol instead, says Pat Slaven, a textile chemist in Consumer Reports' technical group. "And the sooner you act, the better," she adds. "Older stains are tougher to remove, and those that have been through the washer and dryer will set and be almost impossible to get out." Go to ConsumerReports.org for more tips on removing many kinds of stains.



PRODUCT UPDATES

THE LATEST RATINGS FROM OUR LABS

Power Plays

Increasingly severe weather and aging infrastructure are exposing Americans to longer power outages. Here's how to prepare, depending on how much—or how little—inconvenience you're willing to handle.

by Ed Perratore



Honda EU7000is
\$4,000
SCORE 79

PROP STYLING: MEGUMI EMOTO



Scan this page using the Blippar app for tips on getting your generator ready for the season and for our guide on how to choose the generator that's right for you (see page 5 for details).

PHOTOGRAPH BY TOM SCHIERLITZ

HURRICANES AND TORNADOES get the most play in the media, but any extreme weather—heavy rain, wind, hail, or snow—that knocks out your power can cause turmoil in your household. Generator sales tend to spike right before those storms land and once major power outages occur, which is the worst time to shop for one. You need time to size, choose, and properly set up a generator.

From our research, we've seen stoic folks who view a power outage as an adventure and stock up on candles, matches, flashlights, batteries, and lots of ice. That might be okay if blackouts are rare and short-lived events in your area. Or if your water doesn't come from a private well and no one in your household is very old or young, or uses medical equipment. Even then, living without electricity can get old fast. (See "When You Lose Juice," at right.)

Based on your tolerance for "roughing it," here are two scenarios that might suit common circumstances. Pick the approach that's best for your needs.

Complete Convenience

Let's say you want nothing less than a generator that fires itself up the instant the lights go out. That calls for a stationary model (see "Should You Choose Portable or Stationary?" on the next page) that's permanently installed on your property; it does not need to be wheeled into place and manually connected each time the lights go out.

A home that requires an all-out setup might have multiple school-age children, with the need for lots of food in the fridge. A telecommuter might have an active home office with computers, a printer, and ready charging capability. There might also be family members who need uninterrupted power for medical devices, stair lifts, and other AC-powered machines. And if your household includes the very young or the elderly, ample lighting and keeping heating and air conditioning running are essential for safety, not just for comfort.

Stationary generators can take months to get up and running because of permits

and site approvals that some towns or cities require. A good installer should know the specifics of your locale and include obtaining the needed approvals and permits in the overall cost.

Practical and Penny-Wise

Between the "worry-free" crowd and those who need power without fail are many of us who perhaps have older children, no medical devices to power, and can live without central A/C. For such homeowners, a portable generator could be a better choice. Depending on the time of year, you might not need it to run 24/7 to be useful; running it even every couple

of hours can re chill the fridge's contents, heat the house, and charge phones and other portable electronics.

For the safest, easiest connections to your home circuits, we recommend you have a transfer switch installed (some areas require a permit for one). That component connects the generator to your electrical-service panel and lets you power hard-wired appliances while avoiding the risk and hassle of extension cords. It also keeps utility power from frying the circuits you're protecting once the power returns as well as putting at risk any utility employees working outside on the lines.

If the \$500 to \$900 it costs to install a transfer switch seems steep, there's another way: an interlock device. Like a transfer switch, it should be installed by a licensed electrician—but it costs hundreds less. The interlock must be matched to your specific electrical service panel. It lets you attach your generator to your panel without a transfer switch. But it requires more hands-on attention than a transfer switch. First, you'll need to shut off every circuit breaker manually, then you switch on the interlock (it covers your service panel's main cutoff switch). Last, you turn back on the breakers you want to power. That means you'll need to know which breakers power which devices. Once utility power is back, you turn off all of the breakers, slide the interlock back, and turn the breakers back on.

When shopping for a portable generator, look for features that help you start your machine and keep it running when needed. Electric start, powered by batteries, saves you the effort of pulling on a starter cord. Most portables automatically shut down if engine oil gets low; a few also indicate when it has stopped for that reason. A fuel shutoff helps you drain gasoline from the carburetor and fuel lines, important for when the generator sits between power outages. If you keep fuel in your portable, we recommend that you add stabilizer and run the machine once per month to ensure it will start when you need it.

When You Lose Juice



What's at stake when the power goes out? More than lights.

Once you consider all of the things that stop working when the power dies, preparedness might look more appealing. Here's a time line:

Running water (well users) Immediately, including toilets.

Electric hot water A few hours, depending on heating equipment and its settings.

Heating and cooling Immediately.

Refrigerator Contents stay safe to consume up to 4 hours, if door is kept closed.

Freezer Will hold food safely for up to 24 hours when half-full and 48 hours if full.

Sump pump Incoming groundwater, depending on time of year, could cover a basement floor within an hour.

Medical equipment Machines immediately stop running. Batteries meant for backup may keep equipment running for a while.

Chargers for electronics Immediately, though devices already charged will work until drained.

Pipes Could freeze in as little as 2 to 3 hours. Keeping a trickle of water flowing through the pipes can prevent or slow freezing—if you have water.

PRODUCT UPDATES

Should You Choose Portable or Stationary?

Your power needs, spending power, and ability to roll out the generator when it's needed are chief criteria for choosing what's right for you.



The choice boils down to cost vs. convenience. If you want to be ready for any power outage anytime, nothing beats a stationary generator. Once it's installed, it just fires up—automatically—when needed. But most people choose portables because they cost far less and are simpler to set up. Here are other benefits and drawbacks of each:

PORTABLE

Power output For models that can connect to a transfer switch, usually 5,000 to 7,500 watts.

Price range (as tested): \$500 to \$4,000; inverter generators, \$1,600 to \$4,500.

Pros They can be transported easily from one location to another. Setup is as simple as turning them on and powering items. And they can be shared among neighbors.

Cons They run on

fuel, and fuel storage can be hazardous. And though they include a number of power outlets, running extension cords to the generator also poses safety risks; that's why we recommend using a transfer switch.

Fuel needs A 7,000-watt portable generator will use 12 to 20 gallons of gasoline per day if it runs continuously for 24 hours. More powerful generators use more fuel.

STATIONARY

Power output 8,000 to more than 20,000 watts.

Price range \$1,900 to \$5,000 or more, plus installation (about \$2,000 to \$10,000).

Pros They start automatically when the power goes out and often supply more power. They also periodically run a self-diagnosis routine that can alert you to problems.

That enables you to get problems fixed before you need the generator. They run

on natural gas or propane and save you the hassle and safety risks of storing fuel.

Cons Beyond the higher cost of purchase and installation, they often require municipal permits and site approvals, which can take months to get.

Fuel needs A small 8,000-watt stationary model can run for eight to 15 days on a 250-gallon propane tank or indefinitely on a natural gas line.

Safety Tips You Must Follow

For all the positives of owning a generator, misuse can be deadly. Carbon monoxide deaths, or near deaths, and burns happen too often during power outages and storms. The Consumer Product Safety Commission estimates that almost 1,700 people went to emergency rooms with injuries related to generator use last year, and about 50 people die per year. Here's how to avoid generator accidents:

Never run a generator indoors—that includes the basement, garage, or any other enclosed space—it creates deadly levels of carbon monoxide. Place the generator at least 15 feet from the house and away from doors and windows so that no exhaust gas seeps in.

Don't run a portable generator in the rain unless it's covered and vented. Model-specific tents are sold online.

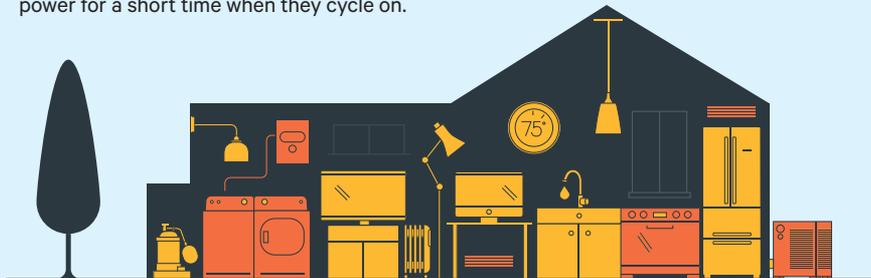
Turn off a gasoline-powered generator and let it cool before refueling. That reduces the risk of fire and of burning yourself while refueling.

Stock up on extra gasoline when you think you'll need to use the generator for an extended time. But be careful to store gas only in an ANSI-approved container in a cool, well-ventilated place. Adding stabilizer to the gas in the can will help it last longer.

Install a transfer switch (about \$500 to \$900 with labor) on a 5,000-rated-watt or larger generator. A transfer switch connects the generator to your circuit panel and lets you power hardwired appliances while avoiding the safety risk and hassle of extension cords. Most transfer switches also help you avoid overload by displaying wattage usage levels.

Match the generator to watt you want to power

Use our numbers to determine the size and type of generator you'll need to power common items in your home. But don't just add up the numbers. Leave some wiggle room because many items—such as fridges and pumps—can draw twice or triple as much power for a short time when they cycle on.



MIDSIZED PORTABLE AND SMALL STATIONARY 5,000 to 8,500 watts

What it powers* Refrigerator (600 watts), heating system (500 watts), well pump (1,500 watts), sump pump (600 watts),

many lights (800 watts), TV (200 watts), computer (250 watts), portable heater (1,300 watts).

Price range \$500 to \$4,500 for portable; \$1,900 to \$3,200 for stationary.

LARGE STATIONARY 10,000 to 20,000 watts

What it powers (in addition to items at left)*: central A/C (5,000 watts); clothes washer (1,200 watts); electric dryer, range, or small water heater (3,000 to 5,000 watts).

Price range \$3,500 to \$5,000, plus installation.

*Operating power needs; power may be higher when product cycles on.

A Greener, Quieter Alternative

Inverter generators cost lots more, but you'll notice the difference in a few important ways.

Unlike most portable generators, which run at one engine speed, inverter generators have smart circuitry that varies engine speed depending on what they're powering. That conserves gasoline and cuts down on the noise. The Honda inverter generator we tested received our top score for noise.

Another important benefit of inverter generators is that they dispense power smoothly at a consistent voltage. That so-called clean power (measured by the Total Harmonic Distortion, THD, in industry lingo) is less likely to damage the sensitive electronics

found in computers, TVs, chargers, and many appliances today. Generators that score relatively low in our power-quality test vary enough in electric quality that they tend to cause equipment to run a bit hotter, which over time has been found to shorten the life span of the electronics.

If that kind of clean, even power is a real priority, then consider a stationary generator. According to our tests, they provide more overall wattage and quality of power for the money, even when installation costs are factored in.



Kohler 14RESAL

Ratings: Generators for Power in a Pinch

Scores in context: Of the 37 generators we tested, the highest scored 93; the lowest, 41. Listed below are the top-scoring models, in order of performance within their respective categories. Recommended models offer top performance overall. CR Best Buys offer the very best for the money. For full Ratings, available to online subscribers, go to ConsumerReports.org

CR Best Buy Recommended

● Excellent ● Very Good ○ Good ● Fair ● Poor

Recommended	Rank	BRAND & MODEL	PRICE	Claimed Output (Watts)	Weight with Fuel (Lb.)	Run Time (Hr.) ^[1]	SCORE	TEST RESULTS				FEATURES		
								Power Delivery	Power Quality	Noise	Ease of Use	Fuel Shutoff	Low-Oil Shutoff	Electric Start
<input checked="" type="checkbox"/>	1	Honda EU7000is ^[2]	\$4,000	5,500	292	8-16	79	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	2	Kohler PRO7.5E	\$1,400	6,300	290	10-15	73	●	●	○	●	●	●	●
<input checked="" type="checkbox"/>	3	Generac RS7000E	\$1,000	7,000	235	9-15	72	●	○	●	●	●	●	●
<input checked="" type="checkbox"/>	4	Troy-Bilt XP7000 30477A	\$900	7,000	270	12-18	72	●	○	●	●	●	●	●
<input checked="" type="checkbox"/>	5	Honda EM6500SXX2	\$2,700	5,500	273	8-13	70	●	●	○	●	●	●	●
<input checked="" type="checkbox"/>	6	Briggs & Stratton 30470	\$900	7,000	270	8-12	69	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	7	Briggs & Stratton 30549	\$1,100	7,500	280	9-15	69	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	8	Westinghouse WH7500E	\$900	7,500	237	8-12	69	●	●	○	●	●	●	●
<input checked="" type="checkbox"/>	9	Predator 68530 ^[3]	\$600	7,000	243	8-13	68	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	10	Generac GP5500 5939	\$700	5,500	212	8-14	67	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	11	NorthStar 165603 ^[3]	\$1,400	6,600	252	8-12	66	●	○	○	●	●	●	●
<input checked="" type="checkbox"/>	12	Champion 41537	\$1,000	7,500	245	7-11	66	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	13	Yamaha EF7200DE	\$1,350	6,000	279	9-14	65	●	○	○	●	●	●	●
<input checked="" type="checkbox"/>	14	Powermate PM0146500	\$850	6,500	228	9-13	65	●	●	●	●	●	●	●

A. PORTABLE

B. SMALL STATIONARY

C. LARGE STATIONARY

<input checked="" type="checkbox"/>	1	Generac 6237	\$2,400	7,000 ^[4]	NA	336 ^[5]	91	●	●	○	●	●	●	●
<input checked="" type="checkbox"/>	1	Cummins 13GSBA-6722B ^[6]	\$4,000	11,040 ^[4]	NA	179 ^[5]	93	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	2	Kohler 14RESAL	\$3,700	12,000 ^[4]	NA	182 ^[5]	93	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	3	Briggs & Stratton 040401	\$4,300	13,600 ^[4]	NA	175 ^[5]	86	●	●	●	●	●	●	●

NA=not applicable; stationary unit. ^[1]The average we measured over various loads. ^[2]Inverter model. ^[3]Price includes optional wheel kit. ^[4]Claimed output is with natural gas; output with propane is 1,000 to 2,000 watts higher (as tested). ^[5]With 250-gallon liquid-propane tank; runs indefinitely with natural gas. ^[6]Lacks a transfer switch.

How we test. We base our score on power delivery and quality, run time, noise, and ease of use. **CLAIMED OUTPUT** is the manufacturer's claimed maximum wattage for continuous operation. To test for **RUN TIME**, we measure each model's average over various loads on a full tank of gasoline or diesel fuel, or for stationary models, a 250-gallon propane tank. **POWER DELIVERY** represents how much wattage each model delivered, along with the generator's ability to meet surge-watt demands. **POWER QUALITY** is our measurement of the smoothness, with consistent voltage, of the power delivered. We measure each generator's **NOISE** at 23 and 50 feet from the generator. Our **EASE OF USE** score covers starting, transport for portables, low-oil and fuel shutoff, and other features. **PRICE** is approximate retail.

Secrets to **Stress-Free Flying**

Fed up with high prices, endless fees, cramped seats, long lines, and crazy connections? Use our strategies to fly saner, safer, and cheaper.

By Mandy Walker





In

January 2015 Eileen Dube of Glendale, Calif., spent \$2,268 booking round-trip flights online from Los Angeles to Washington, D.C., for her husband, herself, and their two daughters for a mid-March vacation. When she went to select their seats, all that was available were middle seats or ones that required an additional fee. “I called the airline because I was sure there must be a mistake—we weren’t departing for over two months,” she says.

Dube recalls that an American Airlines reservation agent told her that she had “paid to travel, not for your seat” and explained that many seats are blocked off by the airline (for frequent flyers or to sell to passengers for an additional charge). She then suggested Dube pony up an additional \$41 per person to guarantee that she and her husband could sit with their daughters, then 8 and 12 years old, on the 5-hour flight.

Dube refused to pay more and registered a complaint on American’s website. A customer relations agent wrote back to say what the reservations agent had failed to mention: that at check-in American could assist the family so that

they could sit together without paying more. The day of the departing flight the Dubes were indeed seated together—in the last row of the plane and inches from the toilet, she said.

American isn’t the only airline to make advance seat selection, once free, something you have to pay for if you want a desirable seat. Fortunately, the financial impact that policy was having on families got the attention of Congress. In July it inserted language into the Federal Aviation Administration reauthorization bill requiring airlines to ensure that children 13 years of age and younger are seated next to an adult or an older child traveling with them.

But there are still plenty of other inconveniences and downright indignities to face when flying in economy today. There was a time when airlines competed for passengers by trying to outdo one another with more comfortable cabins, better food, and general passenger pampering. Decades of bankruptcies, consolidation, and competition from low-cost carriers, however, have transformed the airline industry into one with a laser focus on the bottom line and little apparent regard for consumer comfort and convenience. Today, as anyone who flies well knows, economy seats are cramped, flights are packed, and passengers pay an ever-expanding number of fees for things that

used to be free. Standing in long lines to check in, board, and use the bathroom (some lavatories have been removed to make room for more seats) has become routine. Not surprisingly, complaints against U.S. airlines were up 34 percent last year compared with 2014, according to the Department of Transportation.

Fee Frenzy

The plight of flyers has caught the attention of the Department of Justice, which in June 2015 opened an investigation into whether the largest U.S. carriers—American, Delta Air Lines, Southwest Airlines, and United Airlines—have been colluding to keep ticket prices high. Perhaps not coincidentally, fares dipped about 3.7 percent last year, the first time they’ve gone down since 2012.

But flyers are seeing little of that savings because fees more than made up for the decrease. “Within the past decade, airlines realized they could sell more than just a flight; they could also sell flight-related services,” says Mark Gerchick, former chief counsel of the FAA and a former senior DOT official. “They started charging extra for transporting luggage; making a reservation by phone; changing or canceling a reservation; having a seat assigned; getting onboard first; providing snacks, drinks, and leg room,” Gerchick says.

Last year, U.S. airlines raked in profits totaling \$25.6 billion, a 241 percent increase from 2014, according to the DOT. They earned more than \$18 billion in so-called ancillary revenue, which includes all of those à la carte fees, as well as the sale of frequent-flyer miles to the banks that issue their cobranded credit cards, and commissions on hotel and car-rental bookings made on their websites, estimates IdeaWorksCompany, an airline consulting firm.

Another fee, which most passengers aren’t even aware they are paying, is a fuel surcharge. First levied by the airlines in the 1990s, the fee—which can approach or even exceed the base fare on international flights—is still being added to some ticket prices today (sometimes under the generic label “carrier-imposed charges”)



Source: IdeaWorksCompany.

even though the cost of fuel has dropped precipitously (airlines spent about 38 percent less on fuel last year than in 2014).

And, as Dube learned, the airlines are also squeezing passengers by reducing the number of fee-free seats in economy. On United flights, for example, 5 to 53 percent of the coach cabin seats offer extra leg room, for which a regular economy passenger pays an additional \$9 to \$299 per flight (elite frequent flyers can usually book them free).

If other airlines follow American's lead, the number of no-fee seats may dwindle even more. It recently announced that early next year it will be the first U.S. carrier to offer Premium Economy, a new class of service between coach and business class, on international flights aboard its 787 Dreamliner planes. For a price somewhere between a business and economy fare, passengers will get larger seats; more leg room; seatback entertainment screens; early boarding; and free beer, wine, and spirits. It doesn't take much imagination to wonder whether airlines are so radically stripping coach class of its former comforts so that all but the most cash-strapped and stoic passengers will pay a premium just to avoid it.

The Good Old Days

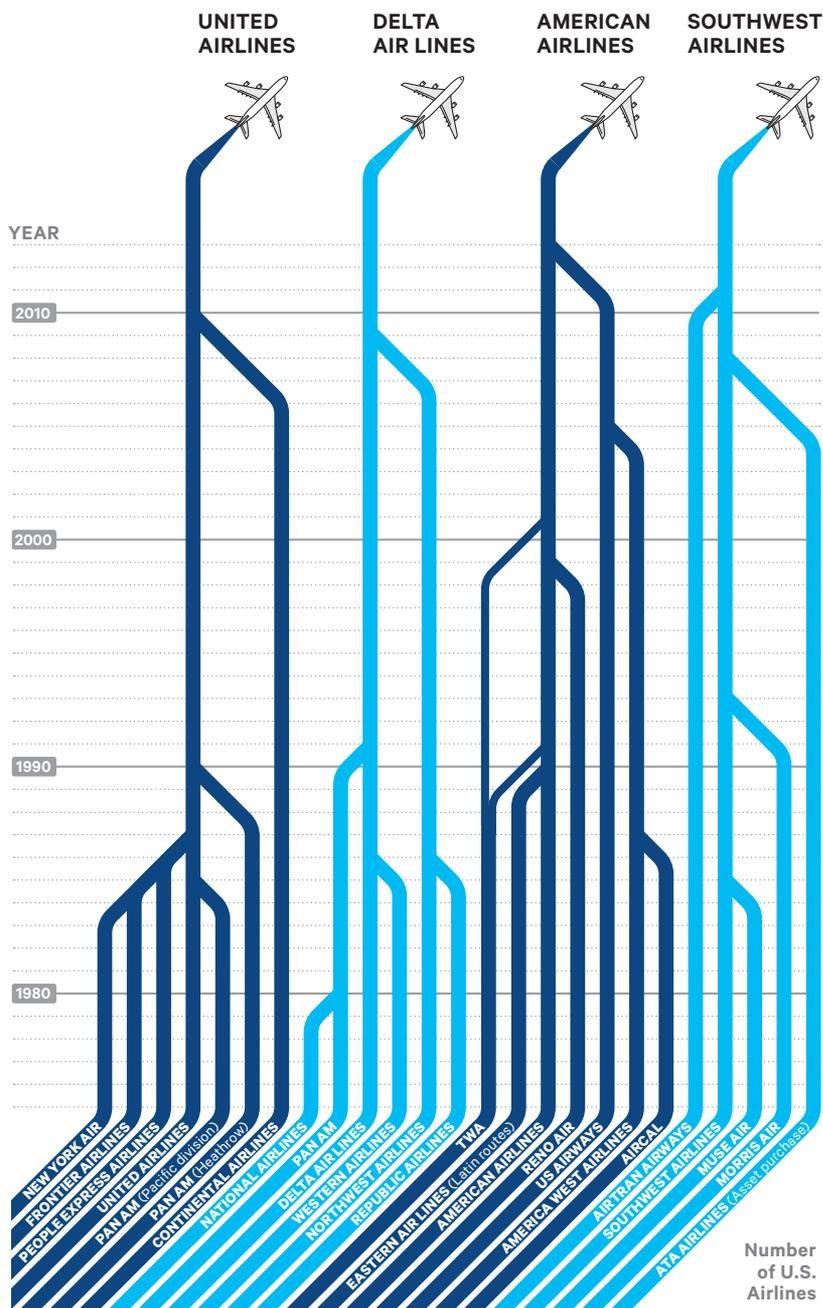
Though it's hard to imagine it today, there was a time when flying was fun, even glamorous. "Many people refer to the beginning of the jet age in the late 1950s through the late '70s as 'the Golden Age of air travel,'" says Guillaume de Syon, an aviation historian who teaches at Albright College in Reading, Pa.

Fares, routes, and schedules were all regulated by the federal government, so airlines competed for customers based on service. Smiling stewardesses took your coat, stowed your bags, and might have offered you a free glass of Champagne. Each seat had a pillow and a blanket, and the captain sometimes even stopped by for a chat. Meals were often inspired or provided by well-known restaurants, including Maxim's of Paris.

During the early 1970s, American even took seats out of economy on its 747s to

Into Thin Air

Though travelers once were able to choose from a number of different carriers, rampant mergers have left four airlines controlling 80 percent of the market, reducing competition and leaving flyers without a meaningful choice when it comes to selecting an airline.



Note: Does not include some smaller subsidiaries.

WINGING IT, THROUGH THE YEARS

A look back at some of the highest—and lowest—points in commercial aviation from the time travelers first took to the skies.



1914 The country's first scheduled passenger service begins between St. Petersburg and Tampa. The 23-minute flight is 11 hours shorter than train travel between the two cities.



1920s

The U.S. government begins to use airlines to transport mail, giving the struggling aviation industry the financial footing it needs to start scheduled passenger service. Commercial aviation is born.



1935

Pan Am debuts regular trans-Pacific service aboard Boeing's "Clipper" flying boats, carrying passengers between San Francisco and Manila in just under 60 hours of flying time.



The golden era of aviation arrives: Boeing Stratocruisers feature pressurized cabins, spiral staircases, sleeping berths, and gold-accented dressing rooms.



1976

Supersonic passenger jet Concorde makes its commercial debut. Flying 1,350 mph, it can travel across the Atlantic in under 3 hours—less than half the time of a conventional jet.

1976



Ralph Nader wins a legal battle for the right to sue an airline for bumping him from a flight. Two years later, major improvements in protections for bumped passengers are adopted.

1971

Southwest Airlines starts one of the nation's first low-fare airlines, with discount fares between Texas cities as low as \$10 one-way.

1955 **42,000,000**

passengers are carried by U.S. airlines



1958

Pan American begins trans-Atlantic service aboard the Boeing 707 jet, cutting flying time from New York to London from 13½ to 6½ hours. The efficiency of jets reduces the cost of flying and opens up air travel to a far wider audience: 53 million passengers travel by air that year.



1960s

Hampered by government regulation, airlines compete on frills, not fares: Braniff's Pucci-clad flight attendants change uniforms three times during the flight; other carriers try to woo passengers with in-flight movies and steaks cooked to order.



1970

Mass air travel begins when Pan Am launches the 747—the biggest passenger aircraft the world had seen, seating up to 400 passengers. Almost 170 million passengers travel by air that year.





Ailing Eastern Air Lines, one of the original “Big Four” domestic airlines, files for bankruptcy. It ceases flying two years later.

1989



1978

Congress passes the Airline Deregulation Act, getting government out of the business of setting air fares and awarding routes.

People Express ceases operations. Dozens of airlines eventually follow. Consumer complaints reach record levels.

1987



1981

People Express Airlines launches with \$23 fares between Newark and Buffalo that it boasts are cheaper than driving. Passengers must pay for food and checked bags.

2000

American Airlines launches its “more leg room throughout coach” program, removing seats from its planes to give an additional 2 inches of space to all passengers.



After 9/11, airlines enter a financial tailspin, losing almost \$58 billion over the next five years and prompting drastic cuts in flight schedules over the next decade.

Concorde makes its last commercial flight; the maximum speed of a passenger airplane returns to about 600 mph—back to where it was almost 50 years earlier.



2000

Low-cost carrier JetBlue launches, promising to “bring humanity back to travel” with comfortable seats, more leg room, and free TV.



2001



2003

American quietly begins phasing out its “more leg room throughout coach” campaign, adding seats back to planes, decreasing leg room.

2004



Major airlines (with the exception of Southwest) begin charging for checked bags.

Development of the “slimline” economy class seat allows airlines to pack more passengers than ever onto planes.



2010

U.S. airlines begin using an à la carte pricing model, charging for—among other things—desirable seats, early boarding, and meals. Passenger complaints soar an average of 23 percent the following year.

2009



Flights average 84 percent full, an industry record, up from 71 percent in 2000.

2013

Delta Air Lines adds an average of nine seats to more than 110 aircraft in an effort to increase seats per departure.

2014



American and US Airways complete their merger, bringing the number of major, full-service U.S. airlines to four, down from 11 in 1983. The federal government investigates airlines for fare collusion.

2015

make room for piano bars and lounges. Fighting over armrests was unheard of, because at least 40 percent of the seats on most flights were empty, according to the Bureau of Transportation Statistics.

But all of that space and pampering came at a price. Flying was expensive. A round-trip coach ticket between New York and Los Angeles was \$104 in 1958 (\$867.40 in today's dollars), according to the industry trade group Airlines for America (A4A), while the median household income that year was \$5,100.

Merger Madness

The fun started to fade after the Airline Deregulation Act was passed in 1978 and the government ended its control of routes and fares. The immediate result, as intended, was a flood of new airlines and, along with them, an increase in the number of flights and lower fares.

But it was the beginning of a bumpy ride for the airlines that lasted for decades. "They struggled to create entirely new business models, and many low-cost competitors entered the industry," Gerchick says. According to A4A estimates, there have been almost 200 airline bankruptcy filings since the deregulation began. Prior to 1978 bankruptcies were rare.

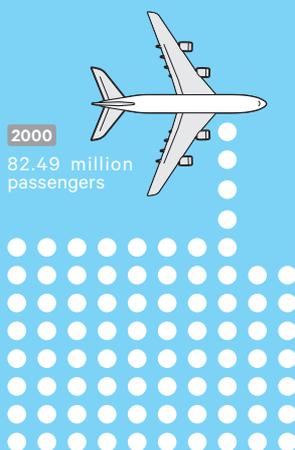
In addition to increased competition, airlines faced challenges such as the drop in passengers following the 9/11 attacks, as well as a dramatic rise in fuel prices. To survive, many that remained joined forces. There have been more than a dozen airline mergers since 2000, according to A4A estimates (see "Into Thin Air," on page 21), leaving just four major airlines—American, Delta, United, and Southwest—controlling 80 percent of air travel in the U.S. last year—leaving travelers with few choices of what airline to fly and airlines with little incentive to improve the passenger experience.

Before the most recent merger—between US Airways and American—was approved in April 2014, the Department of Justice and attorneys general in six states and the District of Columbia filed a civil anti-trust complaint challenging the union. The suit charged that the mergers

THE RISE OF REGIONALS

Regional airlines—which often fly small aircraft that lack amenities—have grown considerably since 2000.

NUMBER OF PASSENGERS CARRIED BY REGIONAL CARRIERS



Source: Regional Airline Association.

between major airlines in recent years have "in tandem, raised fares, imposed new and higher fees, and reduced service. Competition has diminished and consumers have paid a heavy price."

Though passengers have seen fees increase and comfort and convenience decline, the airlines argue that consolidation has made the industry better. "These mergers have allowed airlines to focus on renewing fleets and improving the product at all stages of travel. Fares are affordable, and modest profitability has enabled airlines to buy 388 new planes in 2015 ... and add 10,600 new jobs," Vaughn Jennings, managing director of government and regulatory communications for A4A, said in a statement.

Shrinking Seats, Growing Profits

To pack in more passengers and rake in even more money, airlines have rearranged their cabins and shaved inches from coach-class seats. The narrowest seats on U.S. airlines today measure 17 inches wide (16.5 on some foreign carriers), when 18.5 was about as tight as it got in 1985. For comparison, up in the front of the cabin, first class seating on American, Delta, and United measures from 21 to 30 inches.

The airlines have also dramatically downsized the distance between rows of seats—or pitch, in industry parlance—over the last 30 years, effectively stealing away our leg room. Some American, Delta, and United planes now have a seat pitch of only 30 inches in economy, anywhere from 1 to 5 inches less than in 1985. Spirit, the airline rated lowest by Consumer Reports subscribers responding to our airline satisfaction surveys in 2013 and 2015, offers a pitch of just 28 inches on most seats in all of its aircraft.

Empty seats are money losers, so airlines have gotten very good at filling more of them with people than at any time since airlines were troop carriers during World War II. Among U.S. airlines, the average flights were anywhere from around 42 to 58 percent full between 1954 and 1980, according to Department of Transportation statistics. By 2005 flights

were 78 percent full; last year 83 percent of the seats on airplanes were filled. As a result, U.S. and foreign carriers flew more than 895 million passengers through U.S. airports in 2015, a record high.

A Question of Safety

The negative effects of those record loads extends well beyond boarding headaches and overhead bin storage shortages. Cramped seating might also increase your risk for deep vein thrombosis (DVT), a blood clot forming in one or more of the deep veins in your body, usually in your legs. If you don't move frequently enough, especially on flights more than 4 hours long, blood clots can form in your legs, according to the Centers for Disease Control and Prevention. They often dissolve on their own, but a serious health problem can occur when a part of a blood clot breaks off and travels to the

lungs, causing a blockage—or pulmonary embolism—which may be fatal.

Another concern about cramped quarters is that planes are too full for passengers to safely evacuate in the case of an emergency. Before it will certify a new model of aircraft to enter service, the FAA requires its manufacturer to demonstrate that a full load of passengers can evacuate in 90 seconds with only emergency lighting and with half of the exits blocked. If the airlines add more seats (and consequently reduce seat pitch) after the model is tested, however, the FAA will accept a computer-simulated evacuation, and does not require the airline to do another evacuation test with people as long as the number of seats does not exceed the maximum number it was tested and certified for.

The tight quarters concerned Kevin Zwack, who took a Spirit flight from Denver to Ft. Lauderdale last September. "I'm 6'2"

and weigh 280 pounds, and I noticed that the tight seating made it difficult for me and for the people in the rest of the plane to enter and leave their seats. I suspect it would take more than 90 seconds to evacuate a plane with such cramped seating."

Paul Berry, a spokesman for Spirit Airlines, which has seat pitches of 28 inches on most of the rows in all of its planes, says that all of its aircraft have passed evacuation testing. "If there is a material change in configuration, then there is a new test," he said in an email.

Consumer groups, including Consumer Reports, have expressed concern that the FAA does not always require additional aircraft evacuation testing, using people, on airplanes already in service with pitches of less than 31 inches, although some airlines—including Allegiant, Frontier, and Spirit—have aircraft with tighter seating. Sara Nelson, international president of the Association of Flight Attendants, which represents almost 50,000 flight attendants on 18 airlines, agrees. "If the seats are smaller and closer together, that makes it harder for people to get out in an emergency, period," she says. "We urge the FAA to mandate new safety testing of these tighter quarters." Duquette, responding in an email, said, "The FAA is considering future research to evaluate various main aisle configurations, including various seat pitches, to determine if there are any safety issues."

Separate amendments to the FAA reauthorization bill were introduced in Congress earlier this year (one by Sen. Charles Schumer, co-sponsored by Sen. Richard Blumenthal, and another by Rep. Janice Hahn and Rep. Steve Cohen) that would have set standards for the minimum amount of seat space airlines must provide passengers. "Shrinking seat sizes isn't just a matter of comfort but safety and health as well. The Federal Aviation Administration requires that planes be capable of rapid evacuation in case of emergency, yet they haven't conducted emergency evacuation tests on all of today's smaller seats," Cohen said in a statement. All of the amendments were rejected. The airlines donated almost



GUTTER: CREDITS: FIRST LAST NAME

\$25 million to congressional members in 2015, according to the nonprofit, nonpartisan Center for Responsive Politics.

Behind the Scenes

Regional airlines carried more than 158 million passengers in 2014, up from 41.5 million in 1990 (although down from a peak of 163.5 million in 2010). The major U.S. carriers contract with regional airlines to fly passengers when it makes financial sense (for example, when a route isn't busy enough to justify using a full-sized aircraft). Unless you check carefully during the booking process, you might not realize you'll be flying on a regional

partner—and not on the airline you think you're booking with.

United, for example, contracts with eight North American regional carriers, jointly known as United Express, that provide United-branded service: Aircraft are painted with United colors, including the company's dark blue logo (the word "Express" is painted in a duller gray), and flight attendants wear the standard United uniform.

Though safety standards on regional carriers have improved after earlier concerns over inadequate pilot training and oversight, the low ceilings and narrow cabins of smaller regional planes can

make them feel especially cramped. Smaller regional jets might also have little onboard storage and no seatback in-flight entertainment.

As another way to save money, airlines are outsourcing maintenance to third-party companies overseas. There were 344 FAA-certified overseas repair stations in 1994; by October 2015, the number had grown to 716, according to a July 2016 report by the Government Accountability Office.

Although they are required to follow FAA standards, overseas repair and inspection facilities are subject to less oversight than the FAA-run sites operated in the U.S., says Steve Carl, an Aviation Safety Inspector for

How To Get the Lowest Fare

We searched for almost 400 airfares on nine travel booking websites to find out which deliver the lowest prices. What we found surprised us—and could save you a lot of money.

The easiest way to find and compare all of the flight and fare options for a particular route is to use one of the many online travel agencies (which sell tickets) or fare aggregator sites (which direct you to an airline or other website to purchase the fare).

But do any of them offer lower prices than others?

To find out, we spent two weeks looking for the cheapest nonstop airfares on five busy domestic routes using nine popular sites—CheapOair, Expedia, Google Flights, Hotwire, Kayak, Orbitz, Priceline, Travelocity, and TripAdvisor.

We performed four sets of simultaneous searches on different days at different times, for a total of 372 queries. To check for merchants offering different prices to consumers based on their computer's browser history, we had at least one tester use a browser with a robust history of searching flights (which would be

typical of a comparison shopper) and another using a "scrubbed" browser, or one cleared of all of the "cookies," or data files, that record previous web searches. (Consumers Union has seen evidence of pricing based on search histories in previous investigations, not only with airlines and hotels but also with books and shoes.)

What We Found

The average prices overall ranged from \$299 for Travelocity to \$335 for CheapOair, which delivered the highest average fare and also failed to provide even a single lowest fare among the five routes in our test. We also discovered that fares varied as much as \$138 for the same route at the same time and as much as \$238 over different days.

Among the 372 searches, we found 42 pairs of different prices on separate browsers for the same sites retrieved at the same time (in theory there should have

been no differences). In fact, all nine sites provided different fares on separate browsers at the same time at least once, although it occurred most frequently on Google Flights (12) and Kayak (8). Out of the 42 pairs that differed, 25 resulted in higher fares (by as much as \$121) and 17 resulted in lower fares (up to \$84 less) for the scrubbed browser.

"Cookies or no cookies, it is impossible for us to show different prices to different users," a Kayak spokesman told us when we reported our findings. He suggested that a difference of even a few seconds on simultaneous searches may have affected our results.

We can't say whether the fare differences we found are due to pricing based on browser histories. But we can say this: To increase your chances of finding the lowest fare, search for flights multiple times and over multiple days, both with and without the cookies cleared from your browser (information on how to clear your browser of cookies can easily be found online).

Other Shopping Tips

COVER ALL THE BASES. Before booking a fare on an online travel agency such as Expedia or Orbitz, search google.com/flights to see all of the carriers that serve the route you're flying, then check the airlines' own sites to see whether you can find an even lower fare.

Although we didn't examine any airline sites in this test, remember that they often provide advantages as well, such as offering frequent-flyer-program discounts, seat selection, and details on optional fees for meals, baggage, etc.

BE FLEXIBLE. We found that fares could vary considerably for flights just hours apart, and at crosstown airports. All of those sites offer filters to help you narrow or broaden such choices, though we found that Kayak's were best. Use caution when employing the tools, though: We repeatedly found—after opting for specific departure times or choosing nonstop flights—that our preferences were ignored.

USE PRICE ALERTS. Kayak's, for instance, will email you weekly or even daily notices when the price falls—helpful when you're shopping for fares well in advance.

DON'T STOP SHOPPING AFTER YOU BUY A TICKET. By law you can cancel a booking without penalty for 24 hours after you pay for it, as long as you're not traveling for at least a week. "Prices change all the time, so it's a good idea to check a few sites during that 24 hours to see if you can find an even better deal," says Carl de Marcken, a former MIT professor and fare expert.

—William J. McGee

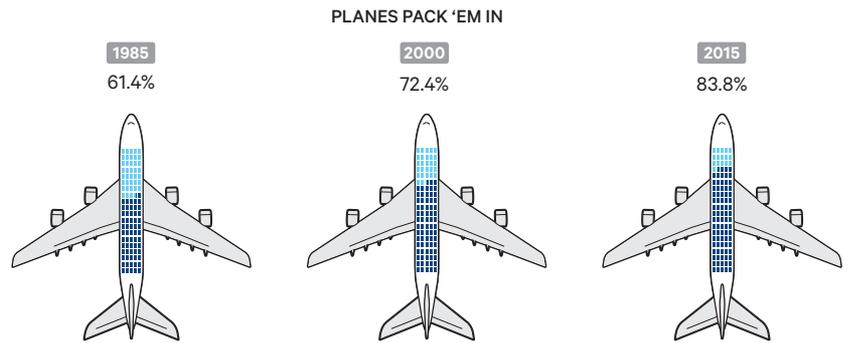
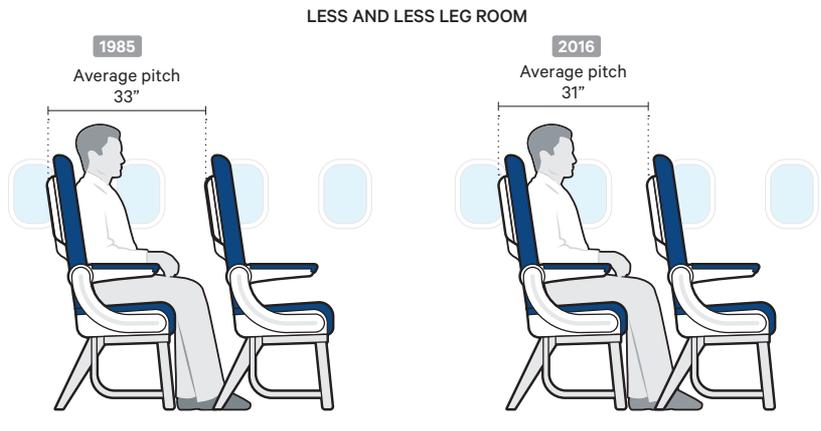
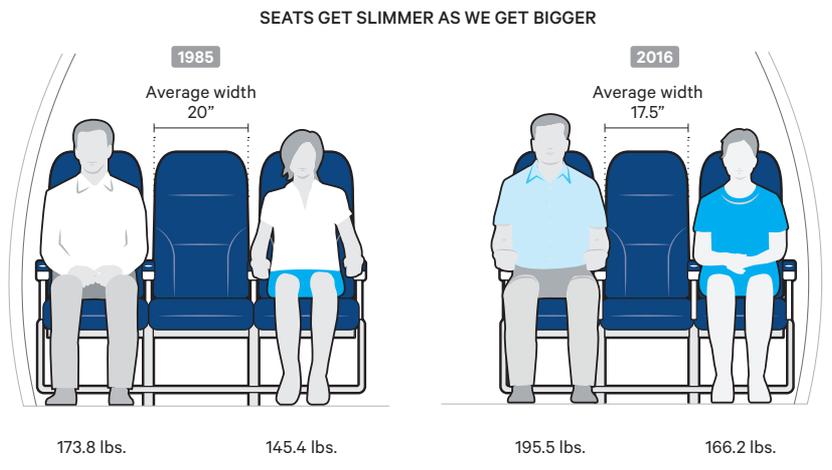
the FAA. “I looked at the training records at one facility in Africa, and not one of its 36 inspectors was qualified to inspect the aircraft they were working on, based on qualifications outlined in that facility’s own training manual,” he says. “It’s harder to go back overseas and do follow-up inspections than it is for us to follow up on issues we find at U.S. facilities.”

Michael Gonzales, a regional vice president of the Professional Aviation Safety Specialists, the union that represents FAA inspectors, says that the number of overseas inspectors has dropped while workload has grown. “Although the U.S. safety record is admirable, I’m worried that fewer inspectors and less oversight might lead to some safety shortcuts that could cause serious problems in the future,” Gonzales says. FAA spokeswoman Duquette replied in a statement that both foreign and domestic repair stations are subject to rigorous scrutiny. “The FAA and aircraft operators audit domestic repair stations. Foreign repair stations are audited not only by the FAA and aircraft operators but also by international civil aviation authorities. These stations must renew their FAA certificate every 12 to 24 months, and if they don’t meet our standards, we do not approve the certificate.”

It’s true, as Gonzales notes, that U.S. airlines today have an impressive safety record: There have been no accident-related fatalities on U.S. carriers since 2009. Though passengers traveling during the “Golden Era” could sip free Champagne at the piano bar, flying was a lot less safe then: From 1964 to 1973, for example, U.S. airlines had an average of seven fatal accidents per year. So the next time you’re at 30,000 feet with your knees pressed to your chin, at least you can take comfort in the fact that chances are still excellent you’ll arrive at your destination safely and soundly—albeit in need of a good massage. ■

Passengers Feel the Squeeze

Added seats translate into added revenues. Airlines are packing more of them into their planes by shaving inches from seat width and distance between rows, and even by eliminating some restrooms and galleys from their planes.



LEARN For more on the state of air travel today—and some crazy cabin seating ideas, go to ConsumerReports.org/airlines

Note: Pitch and width are averages for Boeing 767s in the American, Delta, and United fleets. Sources: Department of Transportation, A4A, SeatGuru, the Centers for Disease Control and Prevention.



SHORTEN YOUR WAIT
Beat at least one airport crowd with TSA PreCheck.

9 Ways to Save Money and Your Sanity

Following these tips will take some of the sting out of flying in economy, help you stay healthy, and protect you from losses when things don't go as planned.

1 SCORE THE BEST SEATS

Start checking for available seats 72 hours before departure. That's when airlines may start releasing those that were earlier reserved for people who have been upgraded or have canceled, which means you might be able to select a plum spot—without having to pay extra for it.

Consult the SeatGuru website for seating maps of most airlines' planes, including seat pitch and width. Green seats have more room; yellow seats

have at least one drawback (such as no window, limited recline or leg room, or proximity to a galley or restroom); red seats have multiple drawbacks.

2 BOARD EARLY AND SAVE ON BAGGAGE FEES

Checking just one bag could cost you \$36 to \$200 round-trip. Making do with a carry-on is an obvious way to avoid bag fees—unless you're flying on Allegiant, Frontier, or Spirit, which charge for carry-on bags.

If traveling light isn't an

option, consider signing up for one of the airline credit cards that offer benefits including free checked bags, early boarding, and discounts on food and beverages. American's AAdvantage Platinum Select MasterCard, Gold Delta SkyMiles from American Express, and United MileagePlus Explorer Card, for instance, all have annual fees less than \$100.

3 SPEED THROUGH SECURITY

Flyers who have registered with TSA PreCheck enjoy expedited screening at

more than 180 U.S. airports, saving time and stress. The Transportation Security Administration says that 95 percent of the people going through the pre-check line waited 5 minutes or less in June. Another perk: PreCheck participants are not required to take off their shoes, jackets, or belts, or remove laptops or bottles with liquids from their bags. The cost is \$85 for five years. To enroll, go to universalenroll.dhs.gov, fill out a form, then make an appointment to visit an enrollment center listed on the website.

4 AVOID THE CROWDS If you'll be in the airport for more than a few hours, consider splurging for access to a lounge. Most airlines sell day passes to their club lounges even if you're not traveling with them, and companies such as Plaza Premium Lounge, No. 1 Lounge, and The Club Airport Lounge sell passes at their locations around the world. The cost is usually between \$30 and \$59 per person, which, in addition to letting you dodge the airport throngs, gets you free food, beverages, WiFi, showers, and assistance with your travel arrangements. Some airline-branded credit cards offer discounted or free passes to lounges. American Express Centurion Platinum cardholders (who pay a hefty \$450 annual fee) have free membership to its seven U.S. lounges.

5 MINIMIZE STRESS Don't join the mad rush to get on the plane. The less time you spend in line, the better, says Leon James, Ph.D., a professor of psychology at the University of Hawaii

who studies air, road, and pedestrian rage. Don't get in line until your section is called, then occupy yourself with a book or a game or a conversation: Research suggests that people who do nothing in line perceive wait times to be longer and more frustrating than those who are distracted.

6 MAXIMIZE COMFORT

Keeping warm and entertained are necessities for serene travel, James says. Bring along a sweater, a small pillow and blanket (for longer flights), and reading material or audio books, and games. Noise-canceling headphones and eye masks can lend an added sense of calm.

7 MOVE IT

Remaining in a sedentary position for more than 4 hours can increase the risk of developing a dangerous blood clot (known as deep vein thrombosis), according to the Centers for Disease Control and Prevention. Our medical experts suggest walking around the plane every hour, if possible, and periodically raising your heels with your toes on the floor, then raising your toes with your heels on the floor. Drink plenty of fluids, especially water, and avoid alcoholic beverages. Wear loose clothing, and do not sit with your legs crossed.

8 KEEP IT CLEAN

Fill an enclosed space with a steady stream of people (many of them coughing and sneezing) and you have the perfect breeding ground for bacteria and viruses.

Research shows that some of the germiest spots on a plane are the seatback tray table,

the overhead air vent, the seatback pocket, and the seat-belt buckle. To ease your mind and maybe avoid picking up a bug, wash your hands frequently with soap and hot water, and use alcohol-based wipes on all of those germ-y surfaces before you touch them, says Marvin M. Lipman, M.D., Consumer Reports' chief medical adviser.

9 MAKE SURE YOU'RE INSURED

Travel insurance can cover the cost of your airfare (as well as hotels, tour costs, or cruise fare) if you need to cancel or interrupt a trip because of unexpected events such as personal illness, the illness or death of a relative or travel companion, or some types of severe weather. Travel insurance will generally also cover the cost of belongings that are lost or stolen, emergency medical care, and also offer a death benefit. Premiums average about 5 to 7 percent of the cost of the trip, according to the Insurance Information Institute.

Trip cancellation and other travel insurance is provided as a benefit of some credit cards, and you may be covered for medical treatment and theft under your own health and homeowners policies (if you're traveling overseas, be sure to confirm that your health insurance will cover you abroad). It's always best to be prepared for the unexpected, especially because airlines can take a very hard line regarding their nonrefundable ticket policies.

To review and purchase travel insurance plans, go to an online broker such as InsureMyTrip or Squaremouth, which each sells coverage from 21 carriers.

COMBATTING CABIN FEVER

Experts say that today's crowded airplanes are ripe environments for conflict between passengers. Here's how to deal when tempers flare in the air.

Sometimes incidents of air rage are so serious that they make the headlines. A seatback recline battle on a United flight from Washington, D.C., to Ghana in 2011, for example, got heated enough that the plane had to return to the departure airport escorted by F-16 fighter jets. That's an extreme example, but last year the Federal Aviation Administration received an official report of an incident with an "unruly passenger" every three to four days, on average.

"Our members have to deal with angry passengers hundreds of times every day," says Sara Nelson of the Association of Flight Attendants.

Passenger anger is largely caused by crowded conditions and a lack of space and services, says University of Hawaii professor Leon James, Ph.D. "The airlines are pitting passengers against each other by toughening their environment and creating less friendly and more competitive interactions," he says.

So what can you do if you notice a fellow passenger behaving badly?

Speak to a flight attendant. If you suspect someone might be angry enough to act out, or you want to complain about something that's annoying you, quietly let one of the flight crew know. "Flight attendants are trained on how to deal with and de-escalate these situations," Nelson says. There's little they haven't already seen or heard.

Don't interfere. The crew will let you know whether they need your assistance. Passengers inserting themselves into tense situations will probably only make them worse, Nelson says. "I did once have to ask passengers to help me restrain a man who tried to open the plane door and was starting a strip-tease," she says.

Talk it out. If something or someone on your flight is getting you steamed, try talking about it with your seatmates. "Just expressing what you're feeling and getting support from others who are going through the same thing will help you calm down," James says.

Your Ticket to Calmer Connections

Booking a flight with at least one layover can save you \$100 or more on a trip, says George Hobica, founder and president of the website Airfarewatchdog. But it also increases travel time—and the chances that a flight delay could foil your connection. If your trip involves a connection, follow these tips

to increase your chances of making the plane—and decrease the likelihood of getting stranded far from your destination.

LENGTHEN YOUR LAYOVER

In theory, any ticket that involves a connecting flight should allow you ample time to make that

connection. But that's assuming that you arrive at your connecting airport on time. In reality, things rarely go that smoothly. "I wouldn't book a ticket that gives you less than 2 hours to connect on domestic flights, or 4 hours on international routes," Hobica advises.

SIT NEAR THE FRONT

Sitting near the front of the cabin can easily shave 15 minutes off your deplaning time, Hobica says.

WORK YOUR APPS

Your airline's app should give you updated info on boarding gates and on delays for each leg of your journey so that you know where you're going and can start rebooking,

if necessary, ASAP. The apps FlySmart and GateGuru (free for Android and Apple) have terminal maps for all major airports.

AVOID THE DAY'S LAST FLIGHT

If you miss your connection and it's the last one of the day, you'll be stranded until you can get another flight to your destination. The airline might provide overnight accommodation—but that's often not the case. Usually, it will only rebook you on the next available flight.

STAY AWAY FROM CERTAIN AIRPORTS

If you can, avoid flying from or through airports that are prone to delays. Of the country's busiest

airports, these eight had the worst on-time departures performance between January and May of this year: Fort Lauderdale-Hollywood International, LaGuardia Airport, Miami International, San Francisco International, Chicago O'Hare International, John F. Kennedy International, Newark Liberty International, and Los Angeles International. You can find on-time arrival and departure statistics data for the largest U.S. airports and airlines on a monthly basis in the Department of Transportation's Air Travel Consumer Report (www.transportation.gov/airconsumer/air-travel-consumer-reports).

—William J. McGee



GET TO THE RIGHT GATE
Use airline apps for updates on gate changes.

PHOTO: MICHAEL HIGGETTY IMAGES

OUR FIGHT TO IMPROVE AIR TRAVEL

Consumers Union, the policy and mobilization arm of Consumer Reports, is working with legislators and regulators in Washington, D.C., on a variety of airline safety and customer-service initiatives. Here's a brief rundown:

MANDATING SEAT SIZES

Consumers Union has joined with legislators and other advocates seeking to require the Federal Aviation Administration

to impose minimum size and space standards for seats on U.S. airlines, because both leg room and seat width have shrunk while average passenger loads have soared. "It's about more than just passenger comfort," says William J. McGee, an airline expert who works with Consumers Union. "There are serious health and safety concerns, including the risk of deep vein thrombosis and the risk that passengers won't be able to evacuate safely in an emergency."

AIRFARE TRANSPARENCY

For years, Consumers Union has called for full transparency of airline pricing and advocated for measures that would make it easier to obtain an airfare's total

cost, inclusive of fees for checked baggage and other amenities.

PROTECTING INFANTS

In 2010, McGee represented Consumers Union as a passenger advocate on the Department of Transportation's Future of Aviation Advisory Committee. He recommended that the FAA ban "lap children"—kids under 2 who are allowed to fly without proper restraints. The FAA does not require that babies be properly secured, even though both the National Transportation Safety Board and the FAA itself state that restraints are the safest way for babies to travel. Consumers Union continues to urge the FAA to ban lap children once and for all. "Ironically, our most

vulnerable passengers are the least secure," McGee says.

CONSUMER CHOICE

Consumers Union has advocated for vigorous investigation and enforcement by antitrust officials to stop airlines from further consolidating and from engaging in practices that thwart competition and consumer choice.

REGIONAL AIRLINES

Every year millions of Americans purchase tickets on what they think are major airlines but are actually regional carriers, which operated 47 percent of flight departures in 2014. Consumers Union has asked the government for greater transparency of such practices.



Southwest Airlines

Airlines



GUIDE TO THE RATINGS. Airlines Ratings are based on our 2015 Summer Survey of 20,806 Consumer Reports subscribers reporting on their most recent experience on a domestic, nonstop flight between the summers of 2014 and 2015. **Reader Score** represents overall satisfaction with the flight experience. If all respondents were completely satisfied with a particular airline, the Reader Score would be 100; a score of 80 indicates that respondents were very satisfied, on average; 60, fairly well satisfied; 40, somewhat dissatisfied. Differences of less than 3 points are not meaningful. Ratings on all other attributes listed under **Survey Results** reflect average scores on a scale from Better to Worse. Ratings of **Seat Width & Comfort** are our averages of two separate Ratings for Seat Width and Seat Comfort. Likewise, the Ratings for **Cabin & Restroom Cleanliness** are an average of the Ratings for Cabin Cleanliness and Restroom Cleanliness. Though Reader Scores associated with coach/economy are comparable to those of first/business class, individual attribute ratings between coach/economy and first/business class are not directly comparable because of differences in methodology. Ratings are based on the experiences of Consumer Reports subscribers, who may not be representative of the general U.S. population.

PROVIDER NAME	READER SCORE	SURVEY RESULTS									
		Leg Room	Seat Width & Comfort	Room for Carry-On Bags	Cabin & Restroom Cleanliness	Check-In Ease	Service from Airline Staff	Food/Refreshments	In-Flight Entertainment	No Hidden Fees	
COACH/ECONOMY											
JetBlue Airways	86	○	○	○	●	●	●	●	○	●	
Southwest Airlines	84	●	●	○	○	●	●	●	○	●	
Virgin America	84	○	○	○	○	●	●	○	○	●	
Alaska Airlines	83	●	●	○	○	●	●	○	○	●	
Hawaiian Airlines	81	●	●	○	○	○	○	○	○	●	
Sun Country Airlines	80	●	●	○	○	●	●	○	○	●	
Delta Air Lines	71	●	●	○	○	○	○	○	○	○	
US Airways	66	●	●	○	○	○	○	○	○	○	
Allegiant Airlines	65	●	●	○	○	○	○	○	○	○	
American Airlines	64	●	●	○	○	○	○	○	○	○	
United Airlines	62	●	●	○	○	○	○	○	○	○	
Frontier Airlines	60	●	●	○	○	○	○	○	○	○	
Spirit Airlines	54	●	●	○	○	○	○	○	○	○	
FIRST/BUSINESS CLASS											
Virgin America	93	●	●	●	●	●	●	●	●	●	
Hawaiian Airlines	92	●	●	●	●	●	●	●	●	●	
Alaska Airlines	90	●	●	●	●	●	●	○	○	●	
Delta Air Lines	81	○	○	○	○	○	○	○	○	○	
American Airlines	77	○	○	○	○	○	○	○	○	○	
US Airways	73	○	○	○	○	○	○	○	○	○	
United Airlines	72	○	○	○	○	○	○	○	○	○	

Dinner on Your Doorstep

Meal kit services such as Blue Apron and Purple Carrot are starting a quiet revolution in the way Americans make dinner. We put their easy, fresh, and tasty claims to the test.

by Janet Lee

PHOTOGRAPH BY TOM SCHIERLITZ



FOOD STYLING: BRIAN PRESTON-CAMPBELL
PROP STYLING: MEGUMI EWOTO



THERE YOU ARE, at the end of a long workday, standing in front of an open refrigerator that's crammed with unappealing leftovers and some past-their-prime veggies, wondering "What in the world am I going to make for dinner?"

For a growing number of Americans, meal kit delivery services provide the answer. Every week, you pick several meals from an ever-changing list of offerings on a company's website, and a few days later a box packed with chilled, premeasured ingredients and detailed cooking instructions arrives on your doorstep.

It's a trend that began in 2012, then took off. These services are now a \$400 million market that's projected to increase tenfold in the next five years, according to Technomic, a research and consulting firm for the food industry. Today there are more than 100 meal kit companies in the U.S., and new ones are springing up all the time. Just recently, Martha Stewart and then Ayesha Curry (wife of the NBA star Stephen Curry) announced they were getting into the business. Even The New York Times offers one where you can get the ingredients for recipes on its cooking website.

What's the appeal? "The convenience of these kits is attractive, but freshness is also very important," says Darren Seifer, a food and beverage industry analyst at the NPD Group. "Some consumers, especially millennials, are willing to spend

more time preparing food because they value freshness, but they still want to get out of the kitchen fairly quickly."

So do the kits deliver on the easy, healthy, and fresh fronts? Our food and nutrition experts, admittedly experienced cooks, ordered from five popular services to try them. We also asked 57 meal kit users (some of whom describe themselves as beginners in the kitchen) to tell us about their experience.

Are They Healthy?

"A lot of the marketing for these kits focuses on 'freshness,' so there's a perception that the meals are also healthy," says Kimberly Gudzone, M.D., M.P.H., an obesity-medicine expert and assistant professor at the Johns Hopkins University School of Medicine. The ingredients we got were indeed fresh, but not all of the services provided enough nutrition info for their meals. HelloFresh listed the most—calories, fat, saturated fat, carbohydrates, protein, fiber, sodium, and sugars—on their recipe cards. Others provided only calories. (See "Our At-a-Glance Guide," on the facing page, for details.) In determining how healthy the meals were, our experts looked at calories, fat, saturated fat, and sodium. If a company didn't provide data for one of those nutrients, we calculated it using a nutritional database program.

Most of the meals included a generous

amount of vegetables. For example, Green Chef's recipes had 2½ to 4½ cups (before cooking) per serving. But that wasn't a given: Blue Apron's Pork Tteokbokki Asparagus with Spicy Black Bean Sauce had just five spears of asparagus for two people. Plant-food based Purple Carrot included only 4 ounces of raw spinach for its Spinach Risotto. Lesson learned: When ordering meals, choose those that supply a good amount of a variety of veggies.

Our biggest concern was the high sodium content of many of the meals. "That's what I worry about," Gudzone says, "especially for people who are 50 and older, who are at greater risk for heart disease, hypertension, and stroke."

Almost every recipe we tested called for seasoning the ingredients with salt several times—as many as five times for one recipe. It's no wonder, then, that we found that half of the dishes had more than 770 mg of sodium, or more than a third of the maximum recommended daily intake of 2,300 mg. Ten of the dishes had more than 1,000 mg per serving. We also found that using the salt shaker less didn't make the meals any less tasty. So don't add salt every time a recipe calls for it, or use just a dash or two.

Of course, how much you eat of each meal changes the nutrition profile, too. If you can squeeze a third portion out of a meal for two, you'll certainly cut calories, fat, and sodium. We found that some of the meals were large enough to allow for that, and most of the kit users on our panel said they were satisfied with the amount on their plates. But there were a few men who thought the meals were on the skimpy side. "The portions are just right for me but a little light for my husband," said a woman on our user panel.

Do They Taste Good?

Yes! Twenty-four of the 27 recipes we tested received an Excellent or a Very Good score for taste. What's more, they may be a smart way to broaden your family's palate.

"A meal delivery service is a great way to try new things," says Amy Keating, R.D.,

OUR AT-A-GLANCE GUIDE

All of the factors below, except characteristics of note, were taken into account in determining our overall scores. The information in each section is based on each service's basic plan for three meals per week for two people.

					
Overall Score	●	●	○	○	○
Average price per portion	\$11.50 (Classic Box)	\$11.99 plus \$9 per box for shipping, which adds \$1.50/portion (Omnivore plan).	\$12	\$11.33	\$9.99
Number of recipes to choose from each week	6 Also offers Family and Vegetarian plans.	6 Also offers Carnivore, Gluten-Free, Paleo, Vegan, and Vegetarian plans.	7 Can add dessert for \$4 per portion.	No choice of meals; everyone gets the same three recipes selected by the company per week.	6 Also offers a Family plan.
Ingredient freshness	Four instances of produce with very minor blemishes.	Majority of foods were fresh/unblemished.	Majority of foods were fresh/unblemished.	Majority of foods were fresh/unblemished.	Majority of foods were fresh/unblemished.
Nutrition notes	On average, lowest in calories, fat (tie), and sodium. Recipe card listed the most nutritional information.	Highest in fiber (tie) and lowest in fat (tie), on average. Recipe card listed calorie info; an expanded nutrition profile can be found online. Recipes had the most vegetables. All ingredients are certified organic. Meat and poultry raised without antibiotics. No GMOs or hormones.	Highest average fat (tie) and sodium content. Recipe card listed calorie info; an expanded nutrition profile is online. Meat and poultry raised without antibiotics.	Vegan. Highest average fat content (tie) but lowest in saturated fat. Highest in fiber (tie). Recipe cards listed calories, carbohydrates, fat, and protein (nothing online). All recipes contained whole grains or legumes. Company claims ingredients are often organic. No GMOs.	Some recipes were on the high side for fat. Recipe card provided information only on calories (nothing online). Company claims ingredients are often organic.
Tasting notes	All very appetizing. This service had more standard fare than the others.	Earned second-highest marks for taste.	Earned the highest marks for taste. Our tasters said they would make every recipe again.	Recipes were tasty but not as impressive overall as those from the higher-rated services.	Recipes were tasty but not as impressive overall as those from the higher-rated services.
Ease of preparation (1 = very difficult, 7 = very easy)	6.5	6	6	6.5	5.8
Average number of cooking utensils used per recipe	10 Recipe card had a detailed but not complete list of equipment needed up front.	12 Recipe card had a thorough list of equipment needed up front.	10 Recipe card had a small list of the equipment needed up front, focusing mostly on pots and pans.	11 Recipe card didn't list equipment needed up front.	10 Recipe card didn't list equipment needed up front.
Average time to get dinner on the table	Company claims recipes take 30 minutes or less, but three took 8-15 minutes longer.	Times listed on the recipe cards were 20-45 minutes, but some meals took about 30-40 minutes.	Times listed on the recipe cards were 20-45 minutes, but most meals took 5-10 minutes less.	Meals took 30-40 minutes to prepare, close to the times on the recipe cards.	Times listed on the recipe cards were 25-60 minutes, but most meals took 5-10 minutes less.
Characteristics of note	Had the fewest ethnic-inspired dishes. Averaged 31 packaging items per box, including 8 plastic bags and 4 plastic containers. Company claims most packaging is biodegradable, recyclable, or reusable.	Recipes often had pre-made, unique, high-quality sauces/ingredients. Recipe cards didn't list ingredient amounts. Averaged 37 packaging items per box, including 22 plastic bags and 6 plastic containers. Company claims most packaging is recyclable, compostable, or reusable.	Offered descriptive tags on recipes (Vegetarian, Quick Prep, Low-Calorie, Test-Kitchen Pick, etc.). Averaged 39 packaging items per box, including 22 plastic bags and 10 plastic containers. Company claims most packaging is recyclable, reusable, or compostable.	Averaged 29 packaging items per box, including 20 plastic bags and 3 plastic containers. Company claims most packaging is reusable, recyclable, or biodegradable.	Had the most ethnic-inspired dishes and the least expensive plan. Averaged 31 packaging items per box, including 14 plastic bags and 7 plastic containers. Company claims all packaging is biodegradable or recyclable. You can return all materials to the company free.

who oversaw our testing. They offer several recipes with ingredients that may be unfamiliar to some people, such as Korean rice cakes, hemp herb dressing, udon noodles, and poblano peppers.

Some consumers, especially Gen Xers and baby boomers, are driven to use the kits to escape a cuisine comfort zone, according to Michael Joseph, founder and chief executive of Green Chef, one of two services with an Excellent Rating in our testing. “They’re going to the same restaurants and making the same meals at home,” he says. Practically every person on our user panel said they liked being able to explore different flavors.

What’s the Cost of Convenience?

All things being equal, you’ll usually pay much more per portion for a meal from one of these services than you would if you cooked the same meal with ingredients you bought yourself at a supermarket.

But all things may not be equal. For example, if you have a cabinet full of spices you’ve used only once or you often throw away most of a bunch of parsley because a recipe calls for only ¼ cup, these kits may actually be a good financial deal because you aren’t buying more of an ingredient than you

need. (Americans discard \$165 billion in food annually.)

In fact, a member of our user panel claimed that the meal kit service she subscribed to helped cut her grocery bill in half. And most of our panelists, whose annual income ranged from less than \$25,000 to more than \$150,000, considered meal kits to be a good value.

In some cases, that value was linked to other factors in addition to a dollar-to-dollar comparison. One woman noted, “It’s very pricey but worth it because I don’t have the time or the energy to plan meals out every week and grocery shop.” Another said, “I could get some of the ingredients for about \$10, but the fact that I had never known about some of them made their discovery worth more.”

Perhaps the best news of all is that it’s pretty painless to check out one of these services. All of ones we tested had introductory offers. Terms change frequently, but as we went to press we found specials such as \$20 off, six meals for the price of two, and even a free week of meals.

The services are flexible, too. Most allow you to suspend a subscription for a week or more, or cancel it for any reason, provided you do so by a deadline. That flexibility means you can order every other week, just one week per month, or on any other schedule that fits your lifestyle.

HOW WE TESTED

Consumer Reports evaluated five meal kit services that deliver nationally: Blue Apron, Green Chef, HelloFresh, Plated, and Purple Carrot. Using our secret shoppers, we ordered every meal* available in each service’s two-person plan during a week in May, for a total of 27 meals. The weeks were chosen randomly.

Our food-testing team then prepared the recipes in our test kitchen without using any special equipment. A panel of professional tasters sampled every dish. Our dietitians scrutinized the nutritional content for the dishes and reviewed the nutritional information for a month’s worth of each service’s meal options. Meals that were at or below 670 calories, 22 grams of fat, and 770 milligrams of sodium were considered to be healthier based on one-third of a day’s nutrition for a 2,000-calorie diet.

Because budgeting is important to every family, we also wanted to compare the meal kit costs vs. supermarket pricing if you shopped for everything yourself. So we bought the ingredients for five meals—one from each service—and calculated the cost of the amount of each ingredient used for one portion of a recipe. You can see the comparison at the bottom of each page from 37 to 41.

GET THE MOST OUT OF YOUR MEALS

Six facts about meal kits to consider before you dig in

- Most services let you select your meals.** You pay the same price no matter which dishes you order, so choose those that center on pricier fare, say, a salmon dish vs. a veggie pasta.
- You need to log in regularly.** If you don’t pick the meals you want, the service will choose for you. And if you’ll be away and forget to cancel for the week, a box will arrive at your house.
- You need to keep some**

- basic ingredients on hand, such as eggs, salt, pepper, and olive oil.** Plated sends email weekly to let you know what you have to add.
- Be prepared to do the cooking.** On average, there were six steps and 10 utensils required per recipe, though the instructions and photos on the recipe cards make the dishes practically foolproof. Most meals took 30 to 45 minutes, start to finish.

- Meal prep is a big factor.** You’ll be chopping, sautéing, and more, so don’t plan on there being downtime to help with homework.
- There’s a lot of packaging, but much of it is biodegradable, recyclable, or reusable.** “We’ve reduced the weight of our boxes already by 40 percent,” says Michael Joseph, CEO of Green Chef, “and we use insulation that can break down in your backyard.”



Dishes were easy to make, and the overall nutrition and taste were among the best.

French Onion Soup Burger with Kale Chips
TASTE SCORE ● CALORIES 791, FAT 43 G, SAT. FAT 18 G, PROTEIN 46 G,
 CARBS 54 G, FIBER 5 G, SODIUM 881 MG

Mediterranean Butter Bean Salad with Feta
TASTE SCORE ● CALORIES 601, FAT 30 G, SAT. FAT 7 G, PROTEIN 18 G,
 CARBS 68 G, FIBER 19 G, SODIUM 1,079 MG

Blackened Tilapia with Crispy Potatoes and Blistered Veggies
TASTE SCORE ● CALORIES 414, FAT 10 G, SAT. FAT 2 G, PROTEIN 40 G,
 CARBS 46 G, FIBER 11 G, SODIUM 112 MG

Pork Teriyaki with Basmati Rice and Asparagus
TASTE SCORE ● CALORIES 666, FAT 13 G, SAT. FAT 3 G, PROTEIN 45 G,
 CARBS 95 G, FIBER 4 G, SODIUM 1,109 MG

Crispy Spiced Chicken with Sweet Potato Fries and Garden Salad
TASTE SCORE ● CALORIES 554, FAT 19 G, SAT. FAT 5 G, PROTEIN 46 G,
 CARBS 53 G, FIBER 10 G, SODIUM 300 MG

Jamie's South Asian Chicken Curry with Fluffy Rice
TASTE SCORE ● CALORIES 631, FAT 17 G, SAT. FAT 6 G, PROTEIN 45 G,
 CARBS 77 G, FIBER 7 G, SODIUM 298 MG

PRICE COMPARISON
Blackened Tilapia

Supermarket Estimated Cost Per Portion
\$5.37

Meal Delivery Service Cost Per Portion
\$11.50

NOTES: Nutrition information was based on one portion of a recipe. Nutrition information for HelloFresh, Green Chef, and Plated was from the manufacturers. Calorie information was provided by Blue Apron; all other values were calculated using a nutrient database. Calories, carbohydrates, fat, and protein were provided by Purple Carrot; all other values were calculated using a nutrient database.



Featured all organic ingredients and creative recipes that were packed with vegetables.

Primavera Mac and Cheese with Spinach Salad
TASTE SCORE ● CALORIES 796, FAT 37 G, SAT. FAT 20 G, PROTEIN 38 G,
 CARBS 80 G, FIBER 14 G, SODIUM 767 MG

Steak Tapenade with Broccoli Slaw and Savory Squash
TASTE SCORE ● CALORIES 645, FAT 32 G, SAT. FAT 6 G, PROTEIN 58 G,
 CARBS 37 G, FIBER 14 G, SODIUM 571 MG

Thai Curried Salmon with Bok Choy and Rice Noodle Veggie Salad
TASTE SCORE ● CALORIES 717, FAT 21 G, SAT. FAT 3 G, PROTEIN 44 G,
 CARBS 90 G, FIBER 9 G, SODIUM 912 MG

Veggie Fajita Polenta with Romaine and Pickled Veggie Salad
TASTE SCORE ● CALORIES 547, FAT 21 G, SAT. FAT 8 G, PROTEIN 18 G,
 CARBS 71 G, FIBER 11 G, SODIUM 1,119 MG

Greek Chicken Bowls with Cumin Rice
TASTE SCORE ● CALORIES 705, FAT 24 G, SAT. FAT 7 G, PROTEIN 64 G,
 CARBS 59 G, FIBER 8 G, SODIUM 717 MG

PRICE COMPARISON
 Greek Chicken Bowl

Supermarket Estimated Cost Per Portion
\$10.94

Meal Delivery Service Cost Per Portion
\$13.49*



Best for taste, but nutritional value left a little to be desired.

Vietnamese-Style 'Shaking Beef' with Brown Rice

TASTE SCORE ● CALORIES 720, FAT 39 G, SAT. FAT 7 G, PROTEIN 41 G, CARBS 85 G, FIBER 5 G, SODIUM 1,420 MG

Quinoa Fried Rice with Mushrooms and Sugar Snap Peas

TASTE SCORE ● CALORIES 700, FAT 37 G, SAT. FAT 5 G, PROTEIN 26 G, CARBS 67 G, FIBER 11 G, SODIUM 1,680 MG

Little Gem Caesar with Crispy Chickpeas

TASTE SCORE ● CALORIES 460, FAT 25 G, SAT. FAT 3.5 G, PROTEIN 16 G, CARBS 47 G, FIBER 14 G, SODIUM 730 MG

Creamy Porcini Pasta with Asparagus

TASTE SCORE ● CALORIES 760, FAT 29 G, SAT. FAT 10 G, PROTEIN 21 G, CARBS 98 G, FIBER 7 G, SODIUM 160 MG

Blackened Fish Sandwiches with Roasted Fingerlings

TASTE SCORE ● CALORIES 800, FAT 52 G, SAT. FAT 9 G, PROTEIN 49 G, CARBS 79 G, FIBER 13 G, SODIUM 870 MG

Cumin-Spiced Beef and Lamb with Long-Life Noodles

TASTE SCORE ● CALORIES 710, FAT 36 G, SAT. FAT 11 G, PROTEIN 44 G, CARBS 77 G, FIBER 8 G, SODIUM 1,620 MG

Mexican Chicken and Rice Bowls with Tomatillos

TASTE SCORE ● CALORIES 670, FAT 28 G, SAT. FAT 4.5 G, PROTEIN 38 G, CARBS 88 G, FIBER 7 G, SODIUM 330 MG

PRICE COMPARISON

Vietnamese-Style 'Shaking Beef'

Supermarket Estimated Cost Per Portion

\$5.10

Meal Delivery Service Cost Per Portion

\$12



Interesting vegan recipes, but menu choices are preset for you.

Crisp Potato and Poblano Tacos with Red Cabbage Slaw
TASTE SCORE ○ CALORIES 838, FAT 40 G, SAT. FAT 4 G, PROTEIN 21 G, CARBS 110 G, FIBER 11 G, SODIUM 341 MG

Chinese Broccoli and Tofu with Peanut Sauce
TASTE SCORE ○ CALORIES 821, FAT 46 G, SAT. FAT 6 G, PROTEIN 35 G, CARBS 72 G, FIBER 10 G, SODIUM 1,587 MG

Spinach Risotto with Spiced Chickpea Crumble
TASTE SCORE ○ CALORIES 598, FAT 18 G, SAT. FAT 2 G, PROTEIN 16 G, CARBS 91 G, FIBER 18 G, SODIUM 687 MG

PRICE COMPARISON

Chinese Broccoli and Tofu

Supermarket Estimated Cost Per Portion

\$3.46

Meal Delivery Service Cost Per Portion

\$11.33



The least expensive, with a couple of so-so recipes—and full nutritional information wasn't available.

Spiced Sweet Potato and Poblano Tostadas with Guacamole
TASTE SCORE ○ CALORIES 680, FAT 27 G, SAT. FAT 5 G, PROTEIN 12 G,
 CARBS 90 G, FIBER 18 G, SODIUM 497 MG

Spring Chicken Fettuccine with Asparagus and Kale
TASTE SCORE ○ CALORIES 740, FAT 15 G, SAT. FAT 5 G, PROTEIN 61 G,
 CARBS 73 G, FIBER 6 G, SODIUM 306 MG

Crispy Cod Tacos with Chipotle Cabbage Slaw
TASTE SCORE ● CALORIES 770, FAT 47 G, SAT. FAT 6 G, PROTEIN 35 G,
 CARBS 59 G, FIBER 17 G, SODIUM 610 MG

Fresh Udon Noodle Stir-Fry with Asparagus and Togarashi!
TASTE SCORE ● CALORIES 700, FAT 18 G, SAT. FAT 1 G, PROTEIN 16 G,
 CARBS 109 G, FIBER 7 G, SODIUM 1,360 MG

Greek Pizza with Kalamata Olives and Feta
TASTE SCORE ● CALORIES 740, FAT 31 G, SAT. FAT 13 G, PROTEIN 24 G,
 CARBS 73 G, FIBER 5 G, SODIUM 1,383 MG

Pork Tteokbokki with Asparagus and Spicy Black Bean Sauce
TASTE SCORE ● CALORIES 700, FAT 36 G, SAT. FAT 12 G, PROTEIN 32 G,
 CARBS 70 G, FIBER 2.5 G, SODIUM 900 MG

PRICE COMPARISON
 Spring Chicken Fettuccine

Supermarket Estimated Cost Per Portion
\$4.88

Meal Delivery Service Cost Per Portion
\$9.99

PHOTOS: JOHN WALSH AND REBEKAH NEMETHY

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Body Snatchers

Medical identity theft—when someone steals your personal data to get prescription drugs, doctor care, or surgery—is dramatically on the rise. Such a crime can endanger your own treatment and trash your finances. Learn who's most at risk and how to protect yourself from becoming a victim.

By Michelle Andrews

IT BEGAN LIKE an ordinary purse snatching. The credit card reader on the gas pump at her Houston neighborhood station wasn't working, so Deborah Ford went inside to pay. By the time she returned to the car, her purse and wallet were gone. Ford filed a police report, canceled credit cards, and requested a new driver's license and health insurance card. She checked with the bank several times to be sure nothing was funny, then forgot about it.

Two years later, the retired postal worker received an unsettling call from a bail bondsman; she was about to be arrested for acquiring more than 1,700 prescription opioid painkiller pills through area pharmacies.

"I had my mug shot taken, my fingerprints taken," she says. Ford suffers from psoriasis, and she was so stressed that she broke out in the signature rash. "The policemen looked at my hands and said, 'That's what drug users' hands look like.' They just assumed I was guilty."

Later, a judge dismissed the charges. "What saved me from going to jail was that I had filed that police report," Ford says.

Turns out the thief altered Ford's driver's license and used that and her stolen health insurance card to go to doctors to seek prescription painkillers. Eventually, Ford says, a pharmacist became suspicious and called police.

"Boy, the thieves messed me up," Ford

481,657

An estimated 481,657 new cases of medical identity theft were reported between 2013 and 2014, an increase of almost 22 percent, according to the Ponemon Institute, a private cybersecurity research firm.

says now of her lengthy and expensive ordeal, which began with the theft in 2008 and didn't end until she got her name cleared of the arrest record last year. "Once they've got your identity, they've got you," she says.

Ford's story is but one glimpse of what "medical identity theft" can look like these days and why it has become a fast-growing strain of identity theft, with an estimated 2.3 million cases identified in 2014, a number that's up almost 22 percent from the year before.

Your personal health insurance information, including your Social Security number, address, and email address, is valuable and vulnerable. When it gets into the wrong hands it can be used to steal expensive medical services—even surgeries—and prescription drugs or to procure medical devices or equipment such as wheelchairs.

Your medical identity is a commodity that can be hijacked and used to falsify insurance claims or to fraudulently acquire government benefits such as Medicare or Medicaid. Your personal medical information may also be sold on the black market, where it can be used to create entirely new medical identities based on your data.

And more often than you might imagine, people outright share their own medical coverage with an uninsured friend or family member in need of care, which is against the law. (More on that later.)

Because current consumer protections aren't specifically designed for medical identity scams, experts warn, people need to understand that they may have to take on extensive work to clear up fraudulent bills. Some frustrated victims simply give up and just pay the bills themselves.

But there's another, far more dangerous

problem with medical identity theft: The thief's own medical treatment, history, and diagnoses can get mixed up with your own personal electronic medical records—potentially tainting and complicating your care for years to come. And that isn't a hypothetical problem.

"About 20 percent of victims have told us that they got the wrong diagnosis or treatment, or that their care was delayed because there was confusion about what was true in their records due to the identity theft," says Ann Patterson, a senior vice president of the Medical Identity Fraud Alliance (MIFA), a group of several dozen healthcare organizations and businesses working to reduce the crime and its negative effects.

The long tail on this insidious theft can create havoc in victims' lives. Take Anndorie Cromar's experience. A pregnant woman reportedly used Cromar's medical identity to pay for maternity care at a nearby hospital in Utah.

Soon, officials from child protective services assumed the infant—born with drugs in her system—was Cromar's baby, and Cromar says the state, not realizing her medical identity had been hijacked, threatened to take her own four children away. A DNA test she took helped to get her name off of the infant's birth certificate, she says, but it took years to get her medical records corrected.

MEDICAL PRIVACY LAWS, EXPLAINED

Laws have been enacted to help protect your medical privacy. The best-known is the Health Insurance Portability and Accountability Act of 1996, or HIPAA. The law spells out who can access your personal information (healthcare providers, their business associates, and subcontractors such as claim processing services) and how they might use and share it. The second key law is the 2009 Health Information

Technology for Economic and Clinical Health Act, or HITECH, which comes into play if a breach of unsecured health data occurs. When a breach takes place, all affected patients must be notified. If a breach affects more than 500 people, the media and federal government must also promptly be informed.

Those protections are good news for consumers, but they are not without problems. Doctors and other healthcare employees might be

uncertain about what information—and with whom—they are legally allowed to share. So a patient's family members may be denied crucial information about his or her treatment because of HIPAA concerns, even when there's no legal reason to withhold it.

And in a strange twist, certain healthcare providers, worried about complying with HIPAA, have refused to let medical identity theft victims

see their own health records once they've been fraudulently commingled with a thief's info. The federal government has clarified that this is not a true reading of HIPAA; know that you are always entitled to see your own medical records.

How to Protect Yourself

There's a lot you can do to avoid medical identity theft and reduce its negative effects if your data has been breached. Take proactive steps to keep your private health information out of the reach of hackers and other would-be thieves, understand what might signal a problem, and learn how to proceed in the event of a theft. Our guide will help.

LOWER YOUR RISK

1. Get copies of your medical records and add new information each time you receive treatment. If your records are corrupted by a thief, you'll have proof that they were altered. "The victims I've talked with tell me that their deepest regret is that they didn't have a copy of their files before the incident," says Pam Dixon of the World Privacy Forum, a nonprofit public interest research group.
2. Check your medical records at least once annually. If you see that there is an error, alert your healthcare provider and request a change.
3. Read every explanation of benefits (EOB) notice from your insurer. If you see something fishy, call about it right away.
4. Be careful with your Social Security number and insurance ID number. Keep your SSN out of your medical file, and if you're asked for it at the hospital or doctor's office, tell them you'd rather not share it for security reasons. That isn't possible if you're on Medicare, where your SSN is currently on your card. Be careful with your insurance ID number as well.

5. If your doctor or hospital asks you to scan your driver's license or other government-issued ID, question whether it's necessary and resist. If that information is stolen along with your medical data, it can increase your chance of identity theft.
6. If you lose your health insurance card, call and ask for a new ID number and new card, advises Larry Ponemon of the Ponemon Institute, a private cybersecurity research firm.
7. Never share your health data or personal information over the phone or in an email unless you're sure who you are communicating with. Questionable emails soliciting that information, known as phishing, often look official but are from hackers. And don't fall for phone scams asking for your Medicare or health insurance ID number.
8. Don't share health information on websites and apps, where it may be less secure.
9. Know that the practice of allowing friends or family members to use your insurance ID is illegal.
10. Ask your healthcare providers how they safeguard your information.

"If you see medical records screens up and people walking away without locking them, it's a clue that they don't take privacy seriously," says healthcare attorney Clinton Mikel, chairman of the American Bar Association's eHealth, Privacy & Security Interest Group.

SPOT THE WARNING SIGNS

- You receive an explanation of benefits summary or health provider bill listing medical treatments you never received.
- A debt collector starts contacting you about unpaid medical bills that you didn't incur.
- Your health insurer informs you that you've reached your benefit limit when you know you haven't, or a letter arrives denying a claim you never filed for a medical condition you don't have.
- You check your credit report and see collection accounts you don't recognize.

IF IT HAPPENS TO YOU...

- Call the facility where the fraud may have happened. "It's always

possible that there has been a clerical error, so establish that the fraud has occurred," says Eva Velasquez, CEO of the nonprofit Identity Theft Resource Center (ITRC).

- File a police report. "It's the tool that establishes that you've been the victim of a crime," Velasquez says.
- File an identity theft report with the Federal Trade Commission at identitytheft.gov. You'll receive a step-by-step recovery plan that will help guide you. The ITRC also offers free help at idtheftcenter.org. Suggestions are likely to include a security freeze, which prevents potential lenders from accessing your credit report.
- Contact your insurer. Some have fraud hotlines where you can report the problem.
- Ask your healthcare providers for copies of your medical records. Some state laws make it easier for you to get copies of your medical records, so check this website for information on your area: healthinfo.org/comparative-analysis/individual-access-medical-records-50-state-comparison.
- Healthcare providers should respond within 30 days of receiving your

written request. If your request is refused because of privacy law, contact the provider and explain that you suspect a crime has occurred. It is your right to see your medical records, even if a thief's information has been added. Report problems obtaining medical records or privacy law violations at the Office for Civil Rights: ocrportal.hhs.gov/ocr/smartscreen/main.jsf.

- Review your medical records and explanation of benefits notices for errors and notify the related health plans or providers by certified, return-receipt mail. Note the incorrect information and ask that it be changed. Include a copy of your police or identity theft report. Go to idtheftcenter.org/fact-sheets/fs-130a.html for steps to take.
- Ask your insurer and medical providers for an accounting of disclosure for your medical records. That tells you which other providers received your medical records so that you can also contact them.
- Hold on to all relevant documents, and after each conversation note the name of the person you've spoken with as well as the date.

“That first stage was the most terrifying thing I’ve ever experienced in my life, getting the call from CPS and having them say, ‘We are coming to take your kids,’” Cromar told Consumer Reports.

An Insidious Kind of Fraud

Financial identity theft is nothing new: Perhaps you or someone you know has had to deal with undoing the mess that happens when someone illegally obtains your personal financial information and uses it to drain your bank account or rack up charges on credit cards fraudulently taken out in your name.

Setting credit accounts back to normal can be a hassle, but your money is, for the most part, protected under the Fair Credit Billing Act. You’re liable for only \$50, at most, of unauthorized charges on a credit card if you follow simple notification steps. And there are defined reimbursement rules if money is illegally withdrawn with a stolen ATM or debit card.

But when consumers become victims of medical identity fraud, stopping the damage and clearing up the bills is much more difficult and time consuming.

Deborah Ford had to quickly figure out what had been done in her name and try to undo the damage. She got on the phone and wrote letters and even tried to track down doctors the criminal had used. “All I have is my name, my integrity,” she says.

47%

Almost half of medical identity theft occurs when a family member takes a relative’s health insurance card or other ID—or when people knowingly share their health information or IDs with someone they know.

Investigators later told her that the thieves were savvy at knowing the system, always waiting 45 days between trips to the same pharmacy to avoid being identified by store video. “They were so slick about it,” Ford says. “To this day, I don’t know who they were. But they were slick, that’s for sure.”

Spotting It, Preventing it

Experts say detecting the fraud in the first place can be the most difficult part. “Medical identify theft and fraud is much harder to spot than financial fraud,” says Michelle De Mooy, acting director of the Privacy & Data Project at the nonprofit Center for Democracy & Technology. “The bank calls you if they see charges in the system that raise an alarm. This kind of fraud is much easier to hide for a longer time.”

That’s why consumers need to be especially smart and careful about how and when they share their personal, medical, and insurance information. (See “How To Protect Yourself,” on page 45.)

Here are a few basic ways you can safeguard your medical privacy and identity: Read those explanation of benefits letters as if they were bank statements. Carefully check all of the correspondence you receive from health insurers and healthcare providers for accuracy and for bills of service that you don’t recognize. Also review your credit reports for unfamiliar debts.

ELECTRONIC RECORDS: A DOUBLE-EDGED SWORD?

You may have noticed during recent medical exams that your doctor or an assistant is typing away as you talk, inputting data into a tablet or computer. What she’s doing is electronically updating the details of your medical life, from the doctor’s perspective.

Thanks in part to the American Recovery and Reinvestment Act of 2009, which led to financial incentives for doctors

who use electronic files, more than 80 percent of American physicians now keep some type of patient electronic health records (EHRs).

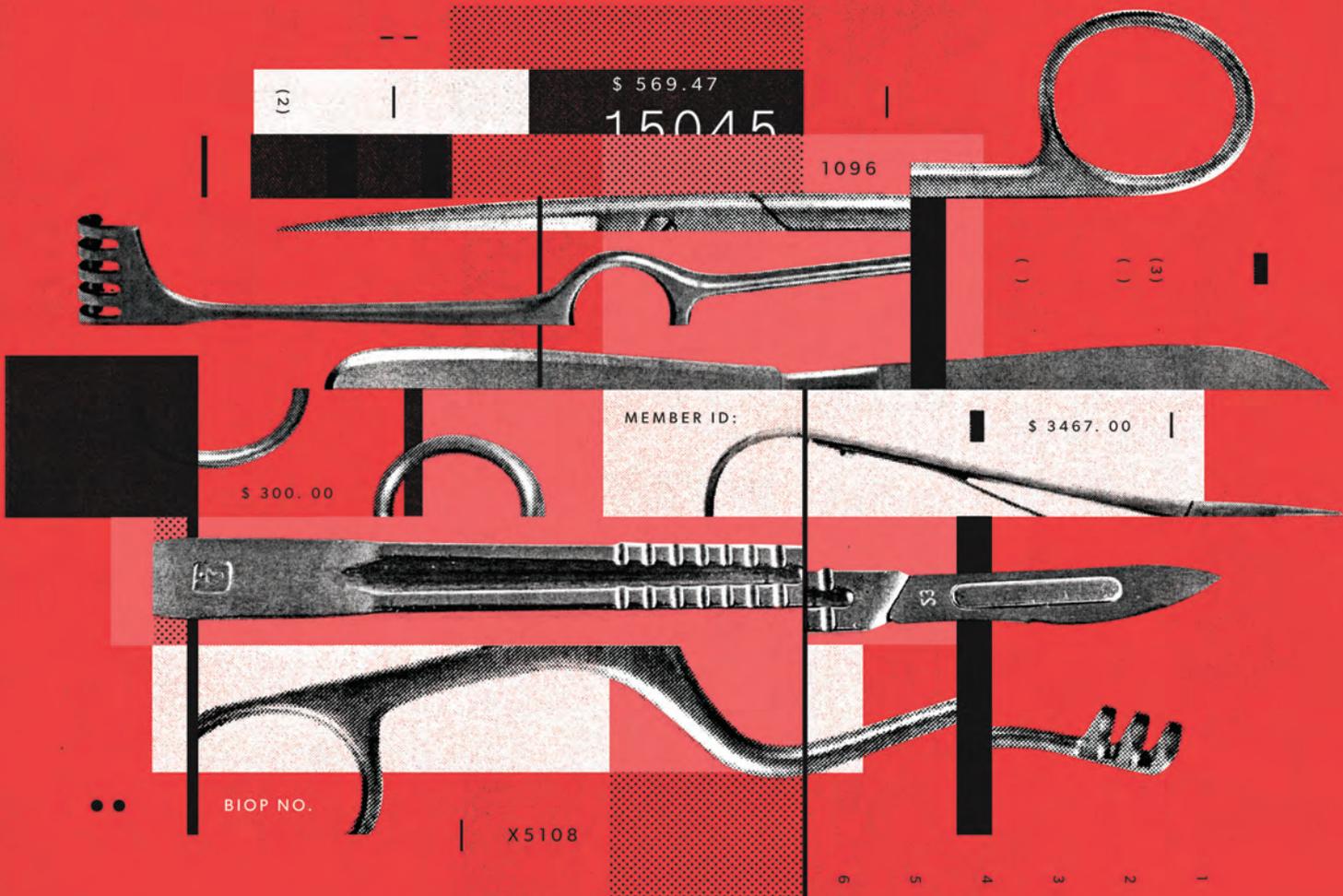
But what does that mean to you? On the positive side, research shows that doctors who use EHRs tend to better follow accepted treatment guidelines and have a lower rate of medication mistakes.

And one day, being able to view the information in your records on a computer, tablet, or mobile

device is expected to help you stay better informed about your own health. Right now you may not be able to quickly access your complete digital medical record. But increasingly, healthcare providers are offering a way for you to see some, but not all, of it once you enter a password—in what’s called a patient portal. By logging on to a patient portal, you may be able to see the results of a recent lab test, for

example, or find out when you last had a tetanus shot. Some are set up so that you can email back and forth with your healthcare provider.

Then there are the benefits of “interoperability,” the seamless movement of information from one healthcare provider to another. If all of your doctors, hospitals, and labs can share your health information with each other—digitally, in real time—they can work more effectively as a team and more easily stay in the



loop on your illnesses, treatments, and surgeries.

And if you have a medical emergency, for example, doctors—rather than having to rely on your memory, which may be clouded by the anxiety of being in the emergency room—will be able to quickly call up your record to get essential information such as your blood type and drug allergies.

But right now this is a plan, not a reality, unless your doctors are all part

of the same healthcare system or use the same medical records software.

“Frequently, doctors can’t really transfer records from system to system,” notes Dena Mendelsohn, staff attorney for Consumers Union, the advocacy arm of Consumer Reports.

The ultimate goal is for consumers to have the data from all of their healthcare providers in one EHR accessed via one patient portal. But the reality for now is that most people probably have several records and more

than one patient portal, depending on how many providers they see.

Having multiple EHRs, says Chuck Bell, programs director for Consumers Union, might also be a security concern because it provides hackers with a larger number of digital targets to strike. And the movement toward electronic medical records “is a large piece of the problem” in the rise of medical identity theft, says Joy Pritts, a former

chief privacy officer at the Department of Health and Human Services and now a health information privacy consultant. Experts say EHRs are full of personal data that thieves can easily use. “Your Social Security number, date of birth, and health insurance number are three of the top things contained in medical records that are highly lucrative for the bad guys,” Pritts adds.

Those in information technology and security

are working to hash out the problems with medical records. But it’s unclear when EHRs will be able to “talk” to each other more efficiently. “Portals have some usefulness for consumers,” Mendelsohn says. “But we are years away from the promise of what EHRs should be. We’re so far from it that we don’t know when it’s going to happen.”

Be stingy with your personal health information, Social Security card, and insurance cards. If someone asks for them, inquire whether it is really necessary.

And don't post news of an upcoming surgery on Facebook or other social media outlets, Patterson recommends. You can't really be sure who might see it. Consider, for example, that a criminal could scoop up the notice of your impending hip replacement and add it to other information he or she can easily find about you online, creating a more robust, more exploitable personal profile. As Eva Velasquez, president and CEO of the ITRC, says, "Our rule of thumb is if it's not something you'd want plastered on a billboard, don't post it. Because essentially every single thing you post has that potential."

All in the Family

Ronnie Bogle, a museum supervisor from San Jose, Calif., says that for more than a decade, he had no idea that his brother Gary had been stealing his identity to secure healthcare across several states.

Gary had a simple routine, Ronnie says: He would move to a new town or city, purchase a picture ID, then present the ID—along with Ronnie's Social Security number—to get treatment, often at hospitals. Gary often claimed to be uninsured when he sought care. After he was treated, the bills were later sent to his given address, not Ronnie's.

Ronnie told Consumer Reports that he only learned what Gary was up to in 2010 after applying for a new credit card and being turned down. He says his credit report contained listing after listing of unpaid debt—for his brother's hospital visits and treatments over the years.

Eventually, Gary was arrested and pleaded guilty to 10 counts of criminal impersonation in California. He's facing more charges in Washington state for allegedly stealing his brother's identity there.

It has taken two years for Ronnie Bogle to straighten out his credit and get his brother's medical bills off his financial record. "He destroyed my credit history multiple times," Ronnie says.

\$13,500

In a recent study, 65 percent of medical identity theft victims said they spent an average of \$13,500 to resolve problems, such as medical bills that they did not incur, or to pay for services such as legal fees or credit monitoring.

So-called Friendly Fraud

Sometimes victims of medical identity theft know exactly how the data breach—or crime—occurred, but for others it remains a mystery.

The Ponemon Institute, a private cybersecurity research firm, surveyed 1,005 people whose medical identity was "most likely" assumed by someone else. In the study, published last year, 10 percent of victims said their event was the result of a healthcare provider or insurer data breach, and an additional 12 percent believe they were tricked into giving up personal information via a fake email or phony website.

But 47 percent of respondents said that their identity theft was perpetrated by a relative or someone else they knew. Twenty-four percent said they had a situation like Bogle's, where a relative stole their identity without their knowledge or consent. And surprisingly, an additional 23 percent of respondents said they willingly shared their credentials with someone they knew. That's why the crime sometimes is referred to as "friendly fraud."

Of those who said they shared healthcare credentials in that way, 91 percent reported that it was because the other person had no health insurance and 86 percent said it was because the other person couldn't afford medical treatment. Sixty-five percent said it was done in an emergency.

Most of the people who voluntarily let someone they know use their medical information said they didn't consider their actions wrong or criminal.

"They think of it as a Robin Hood crime—that no one is getting hurt and that

if a family member is ill, they can help them," says Larry Ponemon, chairman of the Ponemon Institute.

"Those in our studies who did recognize it as a crime saw it as minor, like driving 5 miles above the speed limit. They don't recognize the cost burden to insurance companies or healthcare providers, or that it ultimately ends up in the lap of consumers."

Knowingly allowing a friend or relative to use your medical insurance is illegal, an act of fraud against insurance companies and health providers. And wrongfully sharing Medicare or Medicaid benefits is a crime against the federal government and state programs.

Pinpointing how much money fraud costs the medical industry each year is difficult. One estimate from 2012 put the total economic impact of medical identity theft in the U.S. at \$41.3 billion.

Providers are working on new strategies to prevent it. They're using software to detect fraud in billing, training staff and consumers to recognize warning signs and asking for photo IDs, explains James Quiggle of the Coalition Against Insurance Fraud. He says consumers can expect to see more extensive verification screening in the future, such as the use of fingerprints or palm prints. And soon Medicare cards will no longer bear Social Security numbers.

A Dramatic Rise in Crime

As recently as six years ago, your medical information was kept in paper files, but now it has a more robust virtual life—in electronic medical records and in details you share online. All of that can increase

the likelihood that the wrong people could gain access to your data.

“Now there’s electronic data traveling through all kinds of devices and networks, and it’s much harder to lock it down,” Patterson says.

Big data breaches in the medical care industry have been on the rise over the past decade, including the hack of health insurer Anthem in 2015, when about 70 million of its records were reportedly stolen. And yet it’s still unclear how often medical identity fraud stems from those kinds of hacks, Patterson explains.

Most at Risk

What industry analysts do know is that some people are more likely to become targets, including people on Medicare. “That Social Security number on the card is a gateway, not just to medical fraud but to all kinds of fraud,” Patterson notes. Older adults might also be more susceptible to scams because they tend to be less circumspect about giving up personal health information, she adds. Children’s health records are aggressively pursued by criminals, it turns out, because a minor’s credit report—which would list unpaid debts—isn’t usually seen by parents until a child is old enough to secure credit in his or her name.

Also particularly vulnerable to medical theft, says Pam Dixon, executive director

of the nonprofit World Privacy Forum, are new mothers, surgery patients, and people with chronic conditions such as diabetes or serious illnesses such as cancer. That’s because the more interaction you have with the healthcare system, the more opportunity for records to be breached.

Anyone who casually puts a lot of personal information on social media sites and apps, such as millennials, might attract medical identity thieves, too. Criminals, Patterson explains, are “very good at aggregating social media information and pairing it with health and other data they’ve gotten, like dates of birth and addresses.”

The Chaos in Care

The effects of medical identity theft can be far-reaching, costing victims time, money, and aggravation. A 2016 report from Javelin Strategy & Research found that, on average, identity fraud victims spent only \$55 out of pocket to resolve financial account problems in 2015. But 65 percent of the medical identity theft victims surveyed by Ponemon said they spent an average of \$13,500 to pay the healthcare bills run up in their name, to recover their health insurance, and to pay lawyer’s fees, among other things. Ponemon also found that it took an average of more than three months for

victims to even detect the fraud and more than 200 hours to undo the mess.

There’s much more to do to safeguard consumers, experts say, including creating a defined process for resolving medical and financial problems.

But, says Orly Avitzur, M.D., M.B.A., Consumer Reports’ medical director, one thing that healthcare experts don’t want is to completely lock up our medical data. “It’s important for doctors to be able to share your health needs, diagnoses, and treatment information with each other, and to do so quickly in the event of an emergency,” she says.

Be Ever-Vigilant

Deborah Ford’s encounter with medical identity theft may have been extreme, but the way she handled it was impressive. Once she found out about the fraud, she got on it—alerting every entity involved—and stayed on it until it was over.

“They never used my credit card or checking account; I checked. But lo and behold, they did more than that. They got what they wanted—my insurance information,” she says.

Still, it cost her \$1,500 in fees and took five more years to expunge the drug arrest. On that day, Ford says, “I got my name back.”

Additional reporting by Catherine Roberts.

YOUR DATA FOR THE GREATER GOOD?

It’s natural to want your health information to be fully protected and only seen by those who must know—you, your doctor, and your insurer.

But there is another demand for it: to help advance science. Health researchers say “big data”—information from many people—can help them better understand what works and what doesn’t. To that end, billions of pieces of data can be harvested and analyzed from electronic

health and drug records, and insurance claims. Information can even be culled from connected devices such as glucose monitors and Fitbits.

Proponents say big data holds big promise. For example, in 2015 scientists at Stanford University and the Houston Methodist Research Institute published their analysis of roughly 16 million electronic records of almost 3 million people. They detected a potentially serious drug

risk associated with proton pump inhibitors (for chronic heartburn). They found that those who used PPIs were 16 percent more likely to have a heart attack than those who didn’t.

When certain data is gathered, it can be “anonymized,” stripped of personal identifying details. But some researchers have shown that it can still be possible to pinpoint people’s identities by cross-referencing publicly

available information. “Big data is making healthcare safer and more effective. But the progress is accompanied by the risk that patients’ very personal data may be lost, hacked, or stolen,” says Chuck Bell, programs director for Consumers Union. “It’s critical that data security problems be taken seriously and addressed promptly to ensure that healthcare continues to get better and our privacy is protected.”



THE PROMISE OF A POST-DRIVER LIFE

BY EDWARD HUMES

WHAT WOULD SURPRISE you most about your morning commute if you woke up to find yourself beamed 80 years into the future? Self-driving cars would be a good guess—but no. Autonomous transport will be ubiquitous by the 2040s, if not sooner. Shared fleets of driverless, personal transit will be unremarkable by 2096. The future shock in 80 years will be the end of everything we hate most about car society today: parking, traffic jams, and motor death itself.

A leading killer of Americans under the age of 35—vehicle crashes—will have become less common in 2096 than death by a lightning strike.

The long fight by Consumer Reports and others against unsafe cars has been invaluable, but only the rise of truly autonomous cars will finally address the most deadly and enduring design flaw in our vehicles: the human behind the wheel. And that shift, seemingly radical today but utterly commonsense tomorrow, can transform for the better our cities, our economy, our environment, and our way of life.

If we play our cards right.

It's easy to forget that, 80 years ago, cars lacked even the most basic safety

measures. It took many decades before cars had seat belts, laminated safety glass, airbags, crumple zones, and child safety seats that actually work.

While safety technology has made many crashes more survivable and prevented some others, it can't truly overcome bad driving. And make no mistake: Bad driving is the primary cause of fatal car crashes, most of which are the result of driving too drunk, too fast, or too distracted.

The phrase "car crash" is a pointed choice here. The everyday term "car accident" is a lie we tell ourselves as almost all crashes result from avoidable acts of negligence, recklessness, foolishness, or law breaking. In the 1920s, these were

rightly called "motor killings." Today's euphemism of "accidents" allows us to pretend that the toll of bad driving is the unavoidable cost of modern mobility. And so we avert our gaze from the carnage on U.S. roads: an estimated 38,300 deaths and 4.4 million serious injuries in 2015 alone.

That works out to an average of 105 deaths and more than 12,000 injuries a day on U.S. roads and streets—one motor death every 14 minutes, and one injury serious enough to require medical attention every 7 seconds.

Put another way, one year of dead and injured on the road represents a casualty count greater than the combined American dead and wounded from every war

we've ever fought. Driving is our most dangerous battlefield.

The encouraging news is that recent trends in auto safety aren't just about shielding us during crashes—which is critical and saves lives—but about endeavoring to prevent disaster in the first place. This evolution began with antilock brakes and electronic stability control in the '80s and '90s, and continues today with collision-avoidance systems that can commandeer the brakes when sensors perceive a crash is imminent.

The way forward is clear: We need a concerted effort to add more layers of carefully tested and validated autonomy to cars, ultimately pushing human drivers out of the loop.

Cruise-control tech already in most cars—a primitive form of autonomy—could be repurposed to prevent drivers from exceeding posted speed limits. (Not to mention that speed limits are too high to begin with. We allow cars to do 40 mph where pedestrians are present, knowing this may kill almost half the people struck at this speed. At 20 mph, pedestrian fatalities fall to 7 percent.)

Blood alcohol touch sensors currently in the prototype stage could end drunken driving for good by shutting off the car and automatically summoning a ride-share.

And smartphones—a leading factor in distracted driving—can be forced by an even smarter car into voice-command-only status. Countless lives and many millions in medical and insurance costs could be saved with these simple advances.

Autonomous cars suffered a setback in May, when a driver died while operating Tesla Motors' "beta" feature, Autopilot. The name suggests that the car can drive

itself, when in fact it requires human drivers to keep their hands on the steering wheel and pay constant attention. The driver, who apparently failed to do so, was killed. On the other hand, I personally witnessed the Google Self-Driving Car avoid striking a jaywalker most human drivers would have hit. The technology has the potential to save many lives now being lost to human error. It's



up to the public and private sectors to work together to get there quickly but also safely.

Here's what 2096 could look like if the promise is nurtured into reality, along with a few other key advances that will transform transportation.

Cities will be remade. Because driverless cars can move bumper to bumper safely in much skinnier lanes with no traffic jams, new urban cores can devote 40 to 60 percent of space previously used for street and parking infrastructure to public and open space. And because these will be shared electric fleets rather than individually owned gas burners, air quality will improve while fossil-fuel dependence wanes.

Mass transit will be transformed.

Bus-sized robot coaches can also platoon bumper to bumper—forming de facto trains—then peel off for various stops to suit passengers. Country, suburb, and city can be seamlessly linked. Driving alone in a car for a long distance will be viewed as a shockingly wasteful historical absurdity.

People will become healthier. Repurposed streets and shared fleets will

de-emphasize car culture, and encourage walking and biking for short trips. This could result in a triumph over obesity and heart disease as Americans embrace exercise as a natural part of everyday life.

The movement of goods will be revolutionized.

Advanced 3D printing will make a great deal of shipping and global trade obsolete as manufacturing will become a local activity. Consumers will buy a product design online, then it will be "printed" at the neighborhood 3D shop for pickup. Meanwhile, giant solar airships and airliner-sized drones will move other cargo across the globe.

Going to work may become a perk.

Augmented reality, digital commuting, and virtual meetings will make daily commuting an option, not a requirement.

But face-to-face brainstorming, camaraderie with peers, and the need for human connection will keep many of us commuting. And why not? In a world with personal rapid transit, walkable and bikeable streets, and no traffic jams, there'll be nothing to dread about rush hour.

Edward Humes is an investigative journalist and the author of 14 books, most recently "Door to Door: The Magnificent, Maddening, Mysterious World of Transportation" (HarperCollins). He won a Pulitzer Prize for his reporting on the military for The Orange County Register and a PEN Center USA award for "No Matter How Loud I Shout: A Year in the Life of Juvenile Court" (Simon & Schuster, 2015).

TELL US WHAT YOU THINK

What are your thoughts about the future of transportation? Go to ConsumerReports.org/car2096 to share them.



RIGHT OF WAY: KEEPING ROADS, RAILS, AND SKYWAYS SAFE

1930s

JUNE 1936

Taking the wheel. For the first time, we rated 22 low- and medium-priced automobiles selling for less than \$800. We designated two Best Buys, 17 Acceptable, and three Not Acceptable models for various reasons, including safety, manufacturer's financial viability, poor backseat ride, and bad design. We also rated gasoline, noting few differences among regular grades.

SEPTEMBER 1936

A tell-all about tires. We published the findings of a government study that revealed startling differences in mileage among a dozen brands, and included our own list of Best Buys based on price and expected life span. We also gave readers advice about buying retreads and reported that industry collusion was keeping prices artificially high.

MAY 1938

Two-wheeler trend. In the wake of the mid-1930s bike boom, we declared that cycling had secured its place "as a minor means of transportation, as a sport, and

as exercise." After testing, we named one Best Buy, a Schwinn, and two Not Acceptable, a Steelcraft and a Samson, which we said were made with cheap parts.

JULY-OCTOBER 1939

Consumers get railroaded. In a four-part series, we discussed the deterioration of the nation's passenger rail system just as cars were becoming cheaper and more popular. Railroad management made the problem worse, we said, by eliminating routes and employees, curtailing schedules, and raising fares. We chastised the carriers for misleading ads that depicted amenities consumers were unlikely to get. And we argued that Americans were paying too much to support



lines that were in bankruptcy or nearing it. To prevent the collapse of the railroad system, Consumer Reports suggested industry consolidation and government ownership.

1940s

JULY 1942

Take a hike. Whether Americans were planning a weekend getaway or a vacation, we pronounced, "There isn't a finer vacation than a well-planned hiking trip." We offered tips on how to walk properly and choose the right shoes and clothing.

JULY 1946

The civilian Jeep. The ubiquitous and sturdy vehicle that contributed mightily to the war effort came stateside in peacetime. But we said it was an unworthy passenger vehicle that wasn't safe for children and was hard to get in and out of. The seats weren't very comfy, it rode badly, and the roof protection was rudimentary at best.

FEBRUARY 1949

The birth of discount air travel. Capital Airlines ushered in a new era with its "air coach" service between Chicago and New York featuring fares about one-third less than regular rates. Amenities, we pointed out, were less plush than in first-class. There were no free meals, pillows, or blankets, and both arrival and departure times were not ideal.



"The air coach leaves at the inconvenient hour of 1 a.m.," we noted. But we also reported that the bargain service was proving to be immensely popular with consumers.

1950s

OCTOBER 1950

Anatomy of a safer car. We analyzed the factors that mattered most in surviving a crash. A low vehicle was more stable than a high one, and good visibility was key—wide roofs and windshield pillars were common problems of the day. Other dangers included doors that flew open in a crash and rigid steering posts that didn't bend or break off on impact. One solution that drivers then considered unpalatable: shoulder straps and safety belts.

MARCH 1954

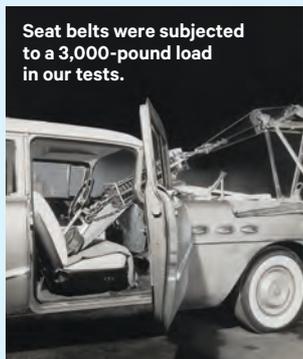
Duped by Duke. Just drop four pill-sized metal tabs into your gas tank and get a ring and valve job while you drive, according to an ad for a product called Motaloy, endorsed by the screen legend John Wayne. What's more, it cost just \$6 (vs. \$100 to have the job done in a garage). After three months of testing, we found that Motaloy didn't improve acceleration or mileage, nor did it reduce oil consumption, improve engine compression, or dissolve carbon deposits.

OCTOBER 1954

Big support for small imports. The U.S. wasn't making small, inexpensive cars, so we tested four imports, including the Volkswagen, aka the "Beetle" or "Bug." Just right for the American small-car buyer who wanted novel design, stamina, and quality workmanship at a moderate price (\$1,495), it got our thumbs-up.

JANUARY 1956

Safety became part of the "sell." For years, vehicle danger was a taboo subject. So we applauded when the industry began showcasing not just power and styling but also safety. That included the near-universal redesign of latches to prevent doors from opening in collisions, and the option to purchase seat belts and recessed steering-wheel hubs. But we pointed out that many models had unresponsive steering, and that braking and road-holding ability remained "far below their potentials."



Seat belts were subjected to a 3,000-pound load in our tests.

MAY 1956

Seat belts: A solution in need of improvement. Although the combination shoulder harness/

lap seat belt wasn't required for new cars until 1968, we were staunch seat-belt supporters from the get-go. In our tests, however, 26 of 39 failed our static and simulated crash tests. We advocated both for better belts and for federal standards.

OCTOBER 1959

Compacts come home. On the heels of declining auto sales in 1958, it was estimated that one in four cars sold by the 1960 model year would be in the compact/



small-range category—one that barely existed three years earlier. With models such as the Chevrolet Corvair, Ford Falcon, and Plymouth Valiant, American automakers took aim at the imports Volkswagen and Renault, the dominant players in the category. We lauded Detroit's decision to offer some sensibly sized, reasonably powered vehicles as a "good thing for all."

1960_s

MAY 1961

Anchors away. We welcomed the agreement by U.S. automakers to provide built-in seat-belt anchors in all 1962 cars, but saw it as only the beginning. We called for a strong educational effort and firm scientific evaluation of the belts' efficacy in preventing injury and death as a means of achieving widespread public acceptance.

FEBRUARY 1963

Rental-car rip-offs. A Consumer Reports investigation revealed

that rental-car customers were overcharged by \$4 million in 1962 because of inaccurate odometers. We acknowledged that the errors were not deliberate, but we urged rental companies to recalibrate their odometers, a relatively simple adjustment.

FEBRUARY 1966

Holding carmakers accountable. We published a rare bylined article, by Ralph Nader. His 1965 book "Unsafe at Any Speed: The Designed-In Dangers of the

American Automobile," was an indictment of the auto industry. The groundbreaking exposé posited that the public had been misled for decades, tricked into believing that they were at fault for almost all car-crash carnage and that the vehicles themselves weren't the cause. The scandal that ensued eventually led to direct government intervention in auto safety and the passage of the National Traffic and Motor Vehicle Safety Act of 1966, which required manufacturers to notify consumers about defects in their products.

APRIL 1968

Putting the brakes on unsafe cars. American Motors' Ambassador had a problem—and Consumer Reports thought it was a significant one. We found that gasoline streamed from its main fuel-tank vent tube in our tests, which could cause a fire in a crash. The automaker verified our findings but initially disputed that the spillage was serious. We thought the risk warranted a Not Acceptable designation for the car. The company eventually modified the vent line in the Ambassador and in the similarly flawed Rebel, thereby eliminating the problem.

1970_s

MARCH 1971

An attack on air pollution. About half of all air pollution, we said, was attributable to automotive wastes, which could cause respiratory ailments, blood disease, and mutations. And though there were no studies linking lead poisoning illnesses or death directly to atmospheric lead concentrations, we applauded new low-lead and no-lead fuel as a step in the right direction, but were emphatic that America needed better alternatives. "It's not just the pollution of the air," we said. "It's the never-ending, never-adequate strips of pavement paved over fresh earth to accommodate the family's first car, second car, and third car. And the metal carcasses and rubber tires heaped high alongside those highways—mute tribute to waste and the depletion of finite resources the automobile requires."



SEPTEMBER 1971

The Corvair and carbon monoxide poisoning. The Chevrolet Corvair had been plagued by dangerous design problems since its 1960 debut. Now it was found to be exposing occupants to deadly carbon monoxide from engine fumes that entered the cabin through the heater. In demanding that the National Highway Traffic Safety Administration (NHTSA) investigate the case from "top to bottom," we said: "The question of how well or poorly this huge manufacturer (General Motors) exercised its corporate responsibility has fundamental bearing on the proper behavior of all corporations and on future legislation."

AUGUST 1972

Safeguarding children. In our tests of 15 car seats, an infant carrier, and a child's harness, we designated 12 of the 17 models Not Acceptable. We continued to push for stronger federal safety standards. Nine years later, more stringent regulations finally helped remove inferior child-restraint designs from the market.

OCTOBER 1972

Focusing on airfare unfairness. We noted a proliferation of fare types—for clergy, seniors, youth, families, small children, and military personnel. The purpose, we said, was to fill seats on many flights that might otherwise remain empty. But we warned, perhaps prophetically, that “unless carefully controlled by government regulation, however, discount fares can have the effect of penalizing regular passengers—either because their travel needs are inflexible or because they can't determine the most economical circumstances under which to fly.”



FEBRUARY 1974

The great gas-shortage scam. The Arab oil embargo often meant price gouging and long lines at the pump. We clarified for consumers that this was “a temporary shortage of refined fuel ... aggravated by the Arab embargo on crude oil.” Fostering the specter of an energy crisis, we said, “can serve as an immense weapon to stampede alarmed politicians and a confused public to accept oil industry ‘solutions’ to the problem—such as junking many of the environmental safeguards that are a thorn in the industry's bankroll.”

APRIL 1974

Bogus gas-mileage claims. The Environmental Protection Agency began calculating gas-mileage figures for cars in 1973. But we criticized its calculations for not being based on real-world driving tests.

We pointed out that manufacturers didn't have to reveal the figures and that those whose cars got poor mileage were likely to launch advertising campaigns based on subjective experiments that left a “blatantly false impression.” For a truer picture, we tested every vehicle in simulated city traffic driving and on one-day trips at various speeds and over a period of about six months, calculating overall fuel economy.

OCTOBER 1976

Building a better electric citicar. We testified before Congress that electric cars had the potential to help fill the need for cheap, pollution-free, short-range transportation. In September 1976, Congress had passed a bill that allocated \$160 million to study the technology. But we also found that what was available at the time was none too good. After testing the Sebring-Vanguard CitiCar, at \$3,396, we characterized it as useful mainly as a demonstration of how far electric-car technology had yet to go. When the car's brakes failed—and for other safety and operational issues—we rated it Not Acceptable.

JUNE 1978

Embracing auto alternatives. Given rising fuel costs, we tested the increasingly popular moped, a motorcycle-bicycle hybrid capable of running 100 miles on a gallon of gas. Because of its low speed (under 30 mph), it wasn't suited to major roadways, but it was just right for errands around town, we said, weather permitting.



JUNE 1979

The downside of diesel. Frightened by the possibility of another gasoline shortage, some motorists sought relief in the form of diesel-powered vehicles, we reported, because of their exceptional mileage. But we warned that the typical diesel passenger car emitted about 50 times as much pollution per 10,000 miles as a car with a gasoline engine. If diesel sales increased to 25 percent of all new autos sold, we concluded, the vehicles would become the single largest mobile source of particulate emissions.

1980_S

APRIL 1983

Crash-worthiness improves. After the government began crashing cars in 1978 to simulate the effects of an impact at 35 mph, manufacturers responded with substantially safer designs, we

reported. When we first evaluated the results, two years earlier, only 27 percent of drivers and passengers would have escaped serious injury. For the 1982 models tested, the anticipated survival rate rose to 60 percent.



SEPTEMBER 1985

A fight against government inaction. Despite 207 deaths and 4,597 reported injuries when various Ford, Lincoln, and Mercury vehicles unexpectedly slipped out of Park, the Ford Motor Company refused to recall them. Nor did the government compel the automaker to do so. Instead, it allowed Ford to send letters and dashboard stickers to owners in 1980 advising them not to leave their cars until the transmission lever was securely in Park, the ignition was shut off, and the parking brake was set. When a NHTSA administrator attributed the body count to sloppy drivers and insisted that Ford's letter advisory was sufficient, we said: “This insistence will be of little consolation to the family of Louise LaBelle (who had been run over and killed by a Thunderbird parked in her driveway) and to the families of other owners of Ford vehicles who will die this year and next if NHTSA doesn't do its job.”

APRIL 1988

Advocating for antilock brakes. Though we highly recommended them, antilock brakes were available on only 3 percent of cars. Expense was a key impediment. Because the brakes, which allow safe, straight stops, were produced in such low volume, they cost more than \$900 (and as much as \$2,230) in the few cars that offered them as options. It wasn't until the 2012 model year that antilock brakes became standard in all cars, with the requirement of electronic stability control (ESC) systems.

APRIL 1989

Cars need airbags. After we lobbied with other safety advocates for more than 20 years for cars to be outfitted with airbags, the government mandated “passive restraints”—either airbags or automatic safety belts—starting

with every 1990 passenger car. Chrysler agreed to install airbags in all of its domestic models and Ford agreed to do so in half of its production run. But General Motors said it would equip only about one in seven cars. The rest were to have what we described as a “mal-designed” automatic belt system that was so awkward that most people would probably detach the belts and use them manually, if at all. Airbags became mandatory as of the 1998 model year.

1990s

JULY 1991

Fed up with flying. A survey of more than 140,000 Consumer Reports readers revealed growing disenchantment with flying. They complained about crowded flights, cramped spaces, congested airports, delayed flights, and inconvenient connections. In short, air travel was a shadow of what it had been a decade or so earlier, we concluded.

AUGUST 1994

Breathing on a jet plane. Despite the 1990 ban on smoking aboard domestic routes, flight attendants continued to complain about burning eyes, breathlessness, noxious fumes, and persistent respiratory illness related to air travel. To gauge the problem, we asked volunteer travelers to monitor the temperature, humidity, and carbon dioxide levels on 158 regular commercial flights. The result: On almost a quarter of them, carbon-dioxide levels were high enough to make the air stale. One reason, we said, had to do with the fact that newer planes recycled as much as half of their ventilation air instead of providing 100 percent fresh air, as older models did.

SEPTEMBER 1996

Lights flicker on electric cars. By this time, experts in automotive technology, including those at Consumer Reports, had come to think that an electric car would be at best a niche vehicle. Our test of a 1995 Solectria Force bolstered that

belief. The car never exceeded 30 miles before running out of juice, and its performance was sluggish.

OCTOBER 1996

Protecting riders from rollovers. NHTSA had long been aware that vehicle rollovers were a serious problem, particularly with SUVs. The agency unsuccessfully attempted to set a standard to predict rollovers. We successfully petitioned NHTSA to develop an emergency-handling test—based on how a vehicle performed in motion, especially when turning sharply—to identify rollover-prone models and keep them off the road.

2000s

Rep. Fred Upton (R-Mich.) shows tread separation in a Firestone tire.



NOVEMBER 2000

The Ford-Firestone firestorm. Firestone’s recall of millions of all-terrain tires (mostly on Ford vehicles) was bungled from the start. The tires were implicated in at least 88 deaths as a result of tread separations, many involving rollovers. Firestone initially blamed motorists for improperly inflating the tires, then issued a belated recall. That left motorists in most states waiting up to a year for replacement tires. The debacle raised serious questions about the government’s ability to protect the public. In the aftermath, we fought for and won key reforms including stricter NHTSA tire testing, more effective reporting requirements, and harsher penalties for manufacturers that failed to report defects. The new standards also included provisions requiring the government to develop a dynamic rollover test that could account for critical differences in suspension design, choice of tires, steering response, and the presence of an electronic stability control system, all of which affect emergency handling.

JANUARY 2002

Wreck revelations. To salvage more cash from crashes, insurers created a little-known shadow industry that sold poorly repaired cars—vehicles that should have been junked for parts—to unsuspecting consumers, found a six-month CR investigation. We revealed that there’s no way for consumers to know the history of a used vehicle because of varying state laws about rebuilding practices and damage disclosure. We advised consumers about how to avoid being cheated.

DECEMBER 2002

A push for greener technology. Despite the growing popularity of hybrid gas/electric vehicles, these automobiles remained a niche product. A promising longer-range technology, we pointed out, was the use of hydrogen fuel cells to power even cleaner all-electric vehicles.



AUGUST 2003

Power window fatalities. At least 25 children died during the previous decade from injuries involving power windows and cars, usually when they had their heads out of windows in parked vehicles and accidentally leaned on the switch, causing the glass to move up forcefully. We identified two types of switches that were inherently riskier: rocker switches and toggle switches. We supported legislation requiring a national performance standard for power windows. In response to a petition by safety groups including Consumers Union, in April 2006 NHTSA banned power window rocker and toggle switches from U.S.-manufactured vehicles.

APRIL 2005

Lifesaving stability control. We considered electronic stability control (ESC) a significant technology that could save twice as many lives as airbags and child safety seats combined. It prevents loss of control in a turn by automatically applying the brakes on one or more wheels to keep the vehicle on its intended path. We declared that no SUV or pickup would be “CR Recommended” unless it performed safely in NHTSA’s rollover test or, if not tested, had ESC, which wasn’t standard until 2012 models.

MARCH 2007

Plane safety loses altitude.

Our investigation underscored the concern that air transportation was losing a margin of safety. Major carriers were farming out more than half of their maintenance work—fixing wheels, repairing engines, and more, we reported. Many repair stations, both in the U.S. and abroad, employed unlicensed, unscreened staff, we said, and the Federal Aviation Administration was increasingly using statistical analysis, not visual inspections, to catch problems.



MARCH 2009

The scooter sensation. We tested models from Honda, Kymco, Motorino, Vespa, and Yamaha, and said that for novices, they were easier to ride than a motorcycle. We described them as fun and fuel-efficient: 65 to 100 mpg at a steady cruise.

2010_S

APRIL 2011

Deadly distracted driving. A Consumer Reports survey revealed that texting and talking on cell phones while driving was widespread and dangerous. But the survey also found increased driver awareness about the hazard and new bans in many regions. A December 2012 survey indicated that widespread media attention about the problem was having an effect: 71 percent of respondents said they had stopped or reduced that behavior in the past year.

JULY 2013

Tesla moves into the fast lane. An expensive electric luxury sports car (almost \$90,000) from an American startup earned a near-perfect road-test score of 99. In 2015, the company's model S P85D sedan (\$127,820) became the best-performing vehicle we had ever tested.

OCTOBER 2013

Making car-crash causes clearer. Like airplanes, cars now had black box data recorders, a promising tool in the battle to reduce highway fatalities. As of Sept. 1, 2012, NHTSA required black boxes in new cars to record the same type of data and standardize how it was retrieved. We supported that but were concerned about how the data might be used. We also said that older cars still on the road meant that it would take years before investigators could reap the full benefits.

MARCH 2014

A victory for backup cameras. Although Congress mandated that new cars should have backup cameras in 2008, new rules were repeatedly delayed until we joined with other safety



AUGUST 2012

A major mileage milestone. The federal government announced a landmark fuel-efficiency standard: 54.5 mpg by 2025. Armed with data from auto testing and consumer surveys, Consumer Reports was a vocal advocate for the new standard, which was also intended to reduce greenhouse gas emissions.

advocates in a lawsuit to force the Department of Transportation (DOT) to act. After years of being pressed for better visibility standards and to measure the blind zones behind cars and trucks to prevent drivers from accidentally backing up over children, the agency required cameras in all vehicles lighter than 10,000 pounds by 2018.

JUNE 2014

Tougher tests for child safety seats. After more than two years of extensive research, we significantly improved our testing of car seats to better account for what happens when a child's head hits the interior of a vehicle. The new dynamic crash test simulated conditions that were more realistic. We also upped the speed of our test crashes from 30 to 35 mph.

JUNE 2016

The Takata airbag tragedy. In a scandal dating back to 2014, we reported that vehicles made by 14 automakers had been recalled to replace frontal airbags. The airbags, made by Takata, could deploy explosively, injuring or killing occupants. The problem has resulted in 10 deaths and more than 100 injuries to date. The recall currently stands at more than 100 million vehicles worldwide.



Volkswagen's top U.S. executive in 2015, Michael Horn, arriving at a hearing before Congress.

SEPTEMBER 2015

The Volkswagen scandal heard round the world. The manufacturer was accused of—and admitted to—circumventing the emissions control system in about half a million diesel vehicles sold in the U.S. since 2008. The deception and subsequent scandal prompted worldwide outrage (millions of the vehicles were sold around the globe), much of which stemmed from VW's advertising, which promoted its technology as "clean diesel." In a tentative settlement of charges with the government, the company said it would set aside an estimated \$10 billion to fix or buy back about 475,000 2.0-liter, four-cylinder TDI vehicles and would allow leaseholders of diesel cars to walk away from their contracts.

MARCH 2016

A new-generation braking system. Consumer Reports was on hand as NHTSA and the Insurance Institute for Highway Safety announced that 20 automakers, representing 99 percent of the market, would make automatic emergency braking standard on almost all new cars by September 1, 2022. We pledged to monitor their compliance with this voluntary agreement. The system alerts drivers to take corrective action to avoid a crash, but lacking a fast-enough response, it may automatically apply the brakes to help prevent the crash or reduce its severity. In our new Overall Score for vehicles, we award bonus points to every car and truck equipped with this life-saving technology.

JULY 2016

Safety concerns about self-driving cars. Despite earlier high marks, a series of crashes—including a fatal one—put Tesla under scrutiny for the way it aggressively deployed and marketed its Autopilot driving-assist system. We criticized Tesla for offering too much autonomy too soon and called on it to disable hands-free operations until the system was safer.

AUGUST 2016

A mileage mark for the Prius. Based on road tests, we crowned the redesigned 2016 Toyota hybrid the most efficient gas-powered car we've ever tested. Achieving an unheard of 52 mpg (combined city/highway), the car eclipsed the 44 mpg mark we recorded in our tests of its previous generation.

ROAD REPORT

RATINGS FROM OUR TEST TRACK *plus* EXPERT CAR ADVICE



The Kia Optima's luxurylike interior comes at a wallet-friendly price.

Put Yourself in the Driver's Seat

Check out our list of the best—and the worst—cars of 2016 based on our tests of more than 70 models.

by Jon Linkov

DOZENS OF CAR MODELS have been launched or completely redesigned in the past year, bringing many new choices to dealer lots. Some of the models have excited us with fresh style, functionality, and imaginative touches. Other cars have inspired nothing but frowns and yawns. Here is our list of the top models and those that fell short of expectations.

ROAD REPORT



Audi Q7



Kia Optima



BMW 7 Series



Lincoln MKX

Audi Q7

ROAD-TEST SCORE **96**
PREDICTED RELIABILITY ○
OWNER SATISFACTION ●
OVERALL MPG 20
PRICE RANGE \$54,800-\$64,300

OVERALL SCORE 87 The slick, pampering Q7 proves that you can have it all—if you can afford it. Despite its big footprint, the three-row Q7's handling is athletic, bettering certain smaller SUVs in our avoidance maneuver. Its supercharged V6 provides plenty of power and a respectable 20 mpg overall. Inside is a plush, inviting interior that shields occupants from the chaos outside. The optional air suspension delivers a cushy ride, eliminating the firmness of the standard setup. Standard forward-collision warning and automatic braking, and a comprehensive infotainment system finish this impressive SUV.

BMW 7 Series

ROAD-TEST SCORE **99**
PREDICTED RELIABILITY ○
OWNER SATISFACTION ●
OVERALL MPG 21
PRICE RANGE \$81,300-\$97,400

OVERALL SCORE 87 Let's face it—a \$100,000 car should be excellent. And this flagship sedan truly is, excelling in almost every facet of the driving experience. Performance is handled gracefully, with power delivered in an elegant rush. The standard air suspension provides a regal, steady ride, and the cabin seals out intrusive road and wind noise. A ride in the 7 Series is often a chauffeur-driven affair, so it may not matter that it doesn't quite drive like a sportier BMW. Instead, the focus is on the ample rear-seat space, available infotainment controls, and massage and recline features.

Kia Optima

ROAD-TEST SCORE **86**
PREDICTED RELIABILITY ○
OWNER SATISFACTION ●
OVERALL MPG 28
PRICE RANGE \$22,140-\$36,040

OVERALL SCORE 81 In the cookie-cutter world of midsized sedans, the Optima represents something more ambitious than a basic family vehicle. The Optima not only benefits from a striking design but also offers levels of equipment that exude a premium feel without breaking your budget. Amenities such as heated leather seats cost thousands less than the competition's. Its taut suspension delivers responsive, secure handling, but the ride is a touch firm. The base engine's 28 mpg overall is commendable, and power is delivered without drama. Unfortunately Kia makes advanced safety features available only on the top-trim SX; that's the Optima's biggest demerit.

Lincoln MKX

ROAD-TEST SCORE **87**
PREDICTED RELIABILITY ○
OWNER SATISFACTION ●
OVERALL MPG 18
PRICE RANGE \$38,260-\$57,810

OVERALL SCORE 79 The MKX is based on the solid but more pedestrian Ford Edge. Lincoln's midsized SUV challenges its German rivals in terms of ride, handling, and quietness. On twisty roads the MKX instills confidence and puts a smile on your face. Yet there is no trade-off in ride quality: Bumps, ruts, and pavement imperfections are muted, and the cabin remains tranquil. The 2.7-liter turbo V6 we tested delivers strong, effortless performance, but it returns just 18 mpg overall. The interior is luxurious, with supremely comfortable seats, and the new Sync 3 infotainment system is one of the better interfaces on the market. Do yourself a favor and test-drive the Lincoln MKX.



Toyota Prius



Honda Civic

Toyota Prius

ROAD-TEST SCORE 75
PREDICTED RELIABILITY ●
OWNER SATISFACTION ●
OVERALL MPG 52
PRICE RANGE \$24,200-\$30,000

OVERALL SCORE 76 From a company that prides itself on steady, incremental improvement, Toyota shocked us by boosting the fuel economy of its hybrid icon from 44 to 52 mpg overall in our tests—an impressive 18 percent. The redesigned Prius demonstrates how a collection of small changes can pay big dividends. Other improvements include higher-quality materials and more soft-touch surfaces than its predecessor had. Handling is clearly sharper, feeling more athletic than past versions. Its leisurely acceleration and flat seats don't make it a sports car, but that isn't the point. Smart, reliable, fuel-efficient transportation is what makes the Prius a standout.

Honda Civic

ROAD-TEST SCORE 75-76
PREDICTED RELIABILITY ○
OWNER SATISFACTION ●
OVERALL MPG 31-32
PRICE RANGE \$18,640-\$26,500

OVERALL SCORE 72-73 Stumble once in a race and the competition catches you. Stumble twice and you're left in the dust. With huge pressure to rebound from the previous-generation Civic's shortcomings, Honda's compact has regained its place among the top cars. The interior is roomy, well-thought-out, and crafted of high-quality materials—a huge improvement. On the road the Honda rekindles memories of Civics past, with refined ride and handling characteristics that keep it composed and steady. The base engine is sufficiently powerful and returns 32 mpg overall. Opting for the stronger turbo brings a penalty of just 1 mpg.

DISAPPOINTMENTS OF THE YEAR

Tough competition has weeded out almost all of the truly bad cars. But mediocrity still abounds, as evidenced by our tests. Here we highlight four 2016 redesigns that should have been better than what their manufacturers churned out.

Smart ForTwo

ROAD-TEST SCORE 41
PREDICTED RELIABILITY ●
OWNER SATISFACTION ○

OVERALL SCORE 41 Despite its brand name, there's nothing particularly smart about the redesigned Smart ForTwo city car. Even at urban speeds the suspension sends stiff jolts through the body of this tiny pod in response to any roadway imperfection. Combine that with ever-present engine thrum and any drive becomes quickly tiring. Even with the improved transmission and more responsive engine, the idle vibration and lag before takeoff makes for dodgy merges into traffic. Look past the Smart's pint-sized whimsy; far better choices are available.

Nissan Sentra

ROAD-TEST SCORE 62
PREDICTED RELIABILITY ●
OWNER SATISFACTION ●

OVERALL SCORE 49 It's not that the Sentra is truly awful, it just pales in comparison to class leaders from Honda, Mazda, and Toyota. Its cheap-feeling cabin and unsupportive front seats stand out in a category with plenty of more refined models. Every trip is a joyless affair. The engine and transmission deliver lazy pick-up and a strained, unpleasant drone, and the suspension is mushy and vague. It is fuel efficient, has a roomy rear seat, and offers a number of features for a low price, but those dashes of color don't overcome the Sentra's drab grayness of a driving experience.

Chevrolet Spark

ROAD-TEST SCORE 47
PREDICTED RELIABILITY ●
OWNER SATISFACTION ○

OVERALL SCORE 48 Chevy pitches the Spark as an affordable, fuel-efficient option for style-conscious city dwellers. In reality, there is no argument in favor of the Spark. Its 33 mpg overall trails the Toyota Yaris iA (née Scion iA) and is matched by larger, more substantial cars like the Hyundai Elantra and Mazda3. Its base price is enticingly low at \$14,635, but just adding power windows erases any savings over the better Honda Fit or Kia Rio. The Spark is slow, with a narrow cockpit and a thin, unsubstantial seat. For drivers in tight urban environs, choose a more substantial new or used car instead.

Toyota Tacoma

ROAD-TEST SCORE 46
PREDICTED RELIABILITY ●
OWNER SATISFACTION ●

OVERALL SCORE 54 The old Tacoma was a clunky, utilitarian truck with unimpressive fuel economy that drove like an agrarian-era relic. As for the redesigned Tacoma—well, the gas mileage is much better. The rest still carries over. Throughout its history, this truck has developed a fan base, but you'd have to be a Tacoma devotee to endure the ponderous handling, tooth-shattering ride, and loud cabin. Once you awkwardly duck into the low seat, you're greeted with a rudimentary interior. Reliability has been very good, but after waiting 13 years for a redesign, buyers deserve better.

New Cars Coming Soon

Don't need to buy right now? You might want to wait for these 8 promising newcomers.

by Jon Linkov



Toyota C-HR

FROM ADVANCED technologies that improve fuel efficiency without sacrificing performance to the latest safety and driver-assistance technology, every new model year generally brings incremental improvements to vehicles in all categories. But some of the cars and SUVs moving through the pipeline right now look to be genuine leaps forward.

For car buyers, it is key to know what is coming down the road. After all, it could well be a car worth waiting for. Likewise, such a forecast can signal a great time to get a deal on a car that is about to be replaced. Timing may not be everything, but it can be money in your wallet.

To empower you to make a smart decision, we've highlighted some of the upcoming models that will be arriving at dealerships starting this fall. Of course, we'll be buying all of these vehicles to test at our 327-acre Auto Test Center between now and summer 2017.



Honda Clarity

ON SALE LATE 2016-LATE 2017

Honda's lineup of alternative-fuel vehicles will carry the Clarity badge. First to arrive is the FCV (hydrogen fuel-cell vehicle). It will be on sale only in California, with a claimed driving range beyond 300 miles and a 5-minute refueling time. The Clarity Electric arrives next, with a range target of 200 miles on a single charge. The final version, the Clarity Plug-in Hybrid, features a 40-mile all-electric range before the engine kicks in. All versions will come standard with advanced safety systems.



Alfa Romeo Giulia

ON SALE FALL/WINTER 2016

It has been 21 years since an Alfa Romeo sedan has been sold in the U.S. The brand returns with a blistering \$70,000 Quadrifoglio version of the Giulia. It has a Ferrari-developed 505-hp, 2.9-liter twin-turbocharged V6 and an unmistakably Italian exhaust aria. Shortly thereafter, the more mainstream Giulia will arrive with a 276-hp, 2.0-liter turbocharged four-cylinder mated to an eight-speed automatic transmission poised to compete head-on with the BMW 3 Series and Audi A4. It will start around \$40,000, with rear- and all-wheel drive offered.



Kia Niro

ON SALE EARLY 2017

With the Niro, Kia is blending the popularity of small SUVs with the fuel savings of hybrid technology. When it goes on sale early next year, the Niro will use a 1.6-liter, four-cylinder engine augmented by an electric drive unit. Kia's target is a 50-mpg EPA combined rating. A plug-in hybrid version is also planned. A full complement of high-tech driver aids, including automatic emergency braking, will be available. Two economy-minded systems will be offered: a guide to inform the driver when to coast or brake, and a navigation system that can plan your route based on battery usage.



Toyota C-HR

ON SALE EARLY 2017

Lacking an entry in the red-hot tiny-SUV segment, Toyota rolls out the outrageously styled C-HR, which slots in just below the RAV4 in price and size. Its raised cabin height, wildly flared fenders, and optional all-wheel drive lend it SUV-lite credibility. This will be the second model, after the Prius, to be based on Toyota's newest platform. Its coupelike styling results in an alluringly swoopy body, but may compromise head room, and make outward visibility and rear-seat access a problem. It's powered by a 2.0-liter, four-cylinder engine mated to a continuously variable transmission. Anyone considering a Honda HR-V or Mazda CX-3 should check out this new competitor.



Kia Cadenza

ON SALE FALL 2016

This is the successor to Kia's refined, reliable, and attractively priced large sedan. The Cadenza's 2017 redesign doesn't represent a radical styling overhaul, but Kia has focused on some important under-the-skin improvements. An all-new platform, shared with the impressive Optima midsize sedan, promises more responsive handling. The 3.3-liter V6 should generate an estimated 290 hp. Already a roomy entry, the new Cadenza is slightly wider and lower. Inside, Kia has added soft-touch materials for a more luxurious feel and revised the front seats to ease cabin access and driving comfort.



Porsche Panamera

ON SALE JANUARY 2017

This redesign delivers high performance and practical details without scrimping. The Panamera's motivation is delivered by strong twin-turbocharged V6 and V8 engines—with the latter deactivating four cylinders when cruising. Both use Porsche's vaunted PDK eight-speed automatic transmission. Porsche has outfitted the new cabin with touch-sensitive switches, panels, and buttons. Driver-assistance technology includes a night-vision system with thermal imaging and software to determine the most efficient engine settings.



Genesis G90

ON SALE NOVEMBER 2016

After decades of selling smartly priced cars, Hyundai is launching its own luxury brand. The G90 will take on German and Japanese luxury flagships, but for thousands of dollars less. Both the 3.3-liter, twin-turbo V6 and a 5.0-liter V8—mated to an eight-speed automatic—provide brisk motivation. The spacious cabin has soft-touch materials and is flanked with wood and chrome trim. For all of the luxury, the cabin is more conventional than artistic. The backseat is the place to be, with power massaging seats and audio and climate controls. Forward-collision warning and automatic emergency braking are standard.



Subaru Impreza

ON SALE DECEMBER 2016

How do you improve on a Top Pick? Don't get radical with the redesign. Though the 2017 Impreza doesn't appear much changed, improvements are promised across the board. The new car's longer wheelbase and wider cabin may enable better ride comfort and interior room, making for a more enjoyable driving experience for all occupants. Interior materials look to be improved as well. Under the hood is a revised 2.0-liter, four-cylinder engine, mated to a continuously variable transmission. Both the sedan and hatchback will feature standard all-wheel drive.

READY FOR PRIME TIME

Beyond the intriguing 8 we highlighted, more than 30 notable new cars, SUVs, and trucks are hitting showrooms in the next year, and we'll test all of them.

FALL 2016

- Buick LaCrosse
- Ford F-250
- Honda CR-V
- Hyundai Ioniq Hybrid
- Infiniti QX30
- Lincoln Continental
- Maserati Levante
- Nissan Armada
- Toyota Prius Prime
- Volkswagen Golf Alltrack
- Volvo S90

WINTER 2017

- BMW 5 Series
- Chevrolet Bolt
- Honda Odyssey
- Hyundai Ioniq EV
- Lexus CT
- Lexus LS
- Toyota 4Runner
- Volkswagen three-row SUV
- Volkswagen Tiguan

SPRING 2017

- BMW X3
- Buick Enclave
- Buick Regal
- Chevrolet Traverse
- Hyundai Ioniq PHEV
- Jeep Wrangler
- Land Rover Discovery
- Tesla Model 3
- Toyota Camry
- Toyota Sienna

Affordable Sophistication

If you've thought of the Malibu only as a workmanlike rental car, prepare to be very pleasantly surprised

OVERALL SCORE
75



MIDSIZED SEDANS

Chevrolet Malibu

THE NEW MALIBU'S curves are reminiscent of the sleek Audi A7. The fresh look evokes desire instead of acquiescence—rare among bland mid-sized sedans. It escapes decades of rental-car

heritage with a quiet and spacious cabin, the straightforward GM MyLink infotainment system, and clear, concise controls. We'd opt for the higher-quality leather seats; the cloth seats aren't supportive enough.

The raspy-sounding 1.5-liter turbocharged four-cylinder engine pulled with confidence and returned a commendable 29 mpg overall. The optional 2.0-liter turbo provides more effortless acceleration.

The Malibu's comfortable ride has the plushness of a more expensive car, ironing out bumps commendably. Handling is planted and stable but not sporty, unlike the Ford Fusion.

But the cool, swoopy design has several drawbacks. For example, visibility, particularly to the side and rear, is somewhat compromised. And getting in and out requires more agility than in a typical upright sedan.

Advanced safety gear, including blind-spot monitoring and forward-collision warning with automatic braking, are available as options.

The Malibu is an attractive, solid-performing sedan. If reliability proves to be solid, this car could challenge the segment leaders.

TESTED VEHICLE

ROAD-TEST SCORE	80
HIGHS	Ride, quietness, controls, fuel economy
LOWS	Raspy 1.5-liter turbo, front-seat comfort, so-so visibility
POWER-TRAIN	160-hp, 1.5-liter 4-cylinder turbocharged engine; 6-speed automatic transmission; front-wheel drive
FUEL	29 mpg
PRICE AS TESTED	\$26,790

Upwardly Mobile

With a better ride and smart touches, the Kia Sportage jumps almost to the top of its class

OVERALL SCORE
76



COMPACT SUVS

Kia Sportage

JUST LIKE SOME people call the store Target "Tar-zhay," you might be tempted to call this redesign "Spor-tahzh."

The base 181-hp, 2.4-liter engine delivers healthy

midrange grunt. Its 9.6-second 0-60 mph time may be slow for the segment, but everyday acceleration is brisk enough.

Restrained engine noise, combined with a smooth and responsive six-speed automatic, make the Kia pleasant to drive. Fuel economy is just fair, however, at 23 mpg.

Handling is mildly sporty for the class, with quick reflexes and a stable attitude, but it's short on steering feedback. The

ride is a touch firm, although not to the point of being stiff.

The front seats offer good thigh support. The rear seat is roomy, and the seatbacks recline, a nice touch in the compact segment. Knobs and buttons feel almost retro in their simplicity. The LX's 5-inch infotainment touch screen is small; higher trim levels get larger screens.

A notable improvement: Large windows alleviate some past rear visibility problems, and a rearview backup camera comes standard. But advanced safety systems come only with the pricey EX trim.

With an improved ride, better noise isolation and visibility, straightforward controls, and a refined powertrain, the Sportage is a compelling choice that adds a dash of youthful style.

TESTED VEHICLE

ROAD-TEST SCORE	78
HIGHS	Handling, powertrain, room, easy controls
LOWS	So-so fuel economy, rear visibility
POWER-TRAIN	181-hp, 2.4-liter 4-cyl. engine; 6-speed automatic transmission; all-wheel drive
FUEL	23 mpg
PRICE AS TESTED	\$26,720

All-American Muscle, With Finesse

The sixth-generation Camaro keeps its brawny pedigree and adds nimble handling

OVERALL
SCORE
73



SPORTS CARS

Chevrolet Camaro

CHEVROLET WOULD LIKE you to see traces of the original 1967 Camaro in its updated muscle car. Perhaps. But what matters is under the skin.

The new Camaro's delightful

dynamic prowess shames some European luxury coupes. Reduced weight, sophisticated suspension, and sharp steering create a driving experience that defies expectations of Detroit iron. The car rockets from its barking V8 engine, corners with alacrity, and has braking performance on par with the world's best. The ride is relatively civilized and impressively planted, benefitting from the optional magnetic

ride suspension and a platform shared with Cadillac.

But the cockpit is decidedly intimate. The bolstered seats are short on lumbar support and head room barely leaves space for a comb-over. The low dash vents freeze your elbows. The rear seat remains vestigial, with room for a toddler or a terrier.

The Chevy MyLink infotainment system is attractive and intuitive to use, but oddly, the touch screen tilts downward.

The narrow windshield and windows mean that upward and outward visibility is atrocious. At least the Camaro includes a rear backup camera along with parking assist and rear cross-traffic alert.

What was once all about brute force now includes refinement and some high culture.

TESTED VEHICLE

ROAD-TEST SCORE	85
HIGHS	Acceleration, handling, braking, styling
LOWS	Visibility, tight interior, dash vent location
POWER-TRAIN	455-hp, 6.2-liter V8 engine; 6-speed manual transmission; rear-wheel drive
FUEL	20 mpg
PRICE AS TESTED	\$47,020

Sunseeker's Solution

Responding to a market gap for a roomy convertible, the Buick Cascada offers a drop top worth considering

OVERALL
SCORE
57



SPORTY CARS

Buick Cascada

ENJOYING A TOP-DOWN drive can certainly brighten anyone's mood. But affordable convertibles that comfortably fit four people have been scarce ever since the Toyota Solara and

Chrysler Sebring left the segment. GM's response? The Buick Cascada, imported from Europe. It includes many niceties you get in a \$60,000 convertible. The only price-comparable ragtops—a Mustang or a Camaro—won't provide the rear passenger room or the same level of convenience.

The Cascada's fabric top keeps out noise and holds in comfy temperatures. The power-operated top opens and

closes in just 17 seconds at up to 31 mph, allowing flexibility for changing mood or weather on the go.

The car isn't particularly quick or fuel-efficient. The body structure is sturdy, free from the agitating shimmy that afflicts many convertibles. Handling is responsive and secure. The ride is steady, but sharp bumps do come through.

The interior is well-trimmed, with comfortable seats and handy touches such as a wind deflector. Heated front seats and steering wheel let you extend open-top season into the autumn chill. Many of the buttons, knobs, and dials feel dated, and the infotainment system is a generation behind. But if you don't mind those compromises, you'll have the wind in your hair without breaking the bank.

TESTED VEHICLE

ROAD-TEST SCORE	53
HIGHS	Well-insulated top, opens/closes on the go, seats four, nice details
LOWS	Visibility, dated controls, ride, fuel economy, long doors
POWER-TRAIN	200-hp, 1.6-liter 4-cylinder turbo engine; 6-speed automatic transmission; front-wheel drive
FUEL	22 mpg
PRICE AS TESTED	\$37,385

ROAD REPORT



Subaru Legacy

Midsized Sedans, Sporty Cars, and Compact SUVs

Scores in context: Recommended models did well in our Overall Score, which factors in road-test results, predicted reliability, owner satisfaction, crash-test results, and availability of front-crash prevention features, such as forward-collision warning and automatic emergency braking. For full Ratings, available to online subscribers, go to ConsumerReports.org/cars.

Recommended

● Better ← → Worse ●

Recommended	Rank	MAKE & MODEL	PRICE	As Tested	OVERALL SCORE	RELIABILITY	Satisfaction	SAFETY				ROAD-TEST RESULTS				
								Front Crash Prevention	Road-Test Score	Overall MPG	Acceleration, 0-60 MPH, Sec.	Dry Braking, 60-0 MPH, Ft.	Avoidance-Maneuver Speed, MPH	Routine Handling	Ride/Noise	Seat Comfort Front/Rear

A. MIDSIZED SEDANS

<input checked="" type="checkbox"/>	1	Subaru Legacy 2.5i Premium	\$24,837	83	●	●	Opt.	89	26	10.2	128	55.5	●	●/●	●/●	●	3+1
<input checked="" type="checkbox"/>	2	Toyota Camry LE (4-cyl.)	\$24,089	83	●	●	Opt.	84	28	8.6	131	53.5	●	●/●	●/●	●	4+0
<input checked="" type="checkbox"/>	3	Honda Accord LX (4-cyl.)	\$23,270	82	●	●	Opt.	85	30	7.7	136	53.0	●	●/●	●/●	●	3+2
<input checked="" type="checkbox"/>	4	Kia Optima EX (2.4L)	\$25,860	81	●*	●*	Opt.	86	28	8.0	130	51.5	●	●/●	●/●	●	3+2
<input checked="" type="checkbox"/>	5	Mazda6 Sport	\$23,590	77	●	●	Opt.	79	32	7.5	132	53.0	●	○/○	●/●	●	3+2
<input checked="" type="checkbox"/>	6	Ford Fusion SE (1.5T)	\$27,720	77	○	●	Opt.	81	24	9.2	125	52.5	●	●/●	○/●	●	3+2
<input checked="" type="checkbox"/>	7	Hyundai Sonata SE (2.4L)	\$23,315	76	●	●	Opt.	78	28	9.2	139	50.5	○	●/●	●/●	●	3+2
<input checked="" type="checkbox"/>	8	Volkswagen Passat SE (1.8T)	\$27,485	76	○	●	Opt.	82	28	8.6	129	52.5	●	●/●	●/●	●	3+1
<input checked="" type="checkbox"/>	9	Chevrolet Malibu 1LT (1.5T)	\$26,790	75	○*	●*	Opt.	80	29	8.4	130	53.0	●	●/●	○/●	●	3+2
	10	Nissan Altima 2.5 SV	\$26,890	59	●	●	Opt.	71	29	8.4	135	52.0	○	○/●	●/●	●	3+2
	11	Chrysler 200 Limited (4-cyl.)	\$25,790	51	●	●	Opt.	63	30	9.8	130	53.5	○	○/○	○/○	●	3+1

B. SPORTS/SPORTY CARS Equipped with manual transmission unless noted with (AT).

<input checked="" type="checkbox"/>	1	BMW M235i	\$50,400	94	●	●	Opt.	98	25	5.2	115	58.5	●	○/●	●/●	●	2+0
<input checked="" type="checkbox"/>	2	Audi TT 2.0T (AT)	\$50,600	81	●*	●*	NA	84	26	6.3	113	58.0	●	○/○	●/●	●	1+2
	3	Chevrolet Camaro 2SS (V8)	\$47,020	73	●*	●*	NA	85	20	4.4	112	56.0	●	○/○	●/●	●	1+2
	4	Ford Mustang GT Premium (V8)	\$43,295	64	●	●	Opt.	84	19	4.9	121	54.5	●	○/○	●/●	●	2+1
	5	Ford Mustang Premium (4-cyl., AT)	\$33,080	59	●	●	Opt.	76	25	6.4	125	53.0	●	○/○	●/●	●	2+1
	6	Buick Cascada Premium (AT)	\$37,385	57	○*	●*	Opt.	53	22	8.9	134	54.0	●	○/○	●/●	○	1+2
	7	Dodge Challenger R/T Plus (V8)	\$40,860	52	●	●	Opt.	70	20	5.5	119	51.5	●	○/○	●/●	●	2+3

C. COMPACT SUVs

<input checked="" type="checkbox"/>	1	Subaru Forester 2.5i Premium	\$27,145	83	●	●	Opt.	85	26	8.7	127	52.0	●	○/○	●/●	●	35.5
<input checked="" type="checkbox"/>	2	Toyota RAV4 XLE	\$29,014	76	●	○	Opt.	75	24	9.3	135	51.0	●	●/●	○/●	●	37.0
<input checked="" type="checkbox"/>	3	Kia Sportage LX (2.4L)	\$26,720	76	●*	●*	Opt.	78	23	9.6	128	52.5	●	○/○	●/●	●	29.5
<input checked="" type="checkbox"/>	4	Hyundai Tucson Sport (1.6T)	\$28,670	75	○*	●	Opt.	79	26	8.4	128	53.0	●	●/●	●/●	●	29.5
<input checked="" type="checkbox"/>	5	Mazda CX-5 Touring (2.5L)	\$28,090	74	●	●	Opt.	74	25	8.0	133	52.5	●	○/○	●/●	●	33.0
<input checked="" type="checkbox"/>	6	Hyundai Tucson SE (2.0L)	\$25,920	73	○*	●	Opt.	76	24	11.0	129	54.0	●	●/●	●/●	●	29.5
<input checked="" type="checkbox"/>	7	Nissan Rogue SV	\$29,920	71	○	○	Opt.	74	24	9.5	134	54.0	○	●/○	○/●	●	31.5
<input checked="" type="checkbox"/>	8	Honda CR-V EX	\$27,500	69	○	●	Opt.	73	24	9.0	134	51.5	●	○/○	●/●	○	36.0
	9	Ford Escape Titanium (2.0T)	\$36,600	68	●	○	Opt.	79	22	8.2	134	52.5	●	●/●	●/●	○	35.0
	10	Jeep Cherokee Latitude (4-cyl.)	\$27,490	40	●	○	Opt.	58	22	10.9	138	51.5	○	○/●	○/●	●	31.0

*Based on limited data.

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Fall Follies

Dropping as fast as autumn leaves, the errors just keep piling up

We'll Buy a Vowel!

Thrift is great, but are E's really that expensive?

Submitted by Tim Smick of Fairmont, Minn.



Trick or Treat

At last! An easy way to ghost-proof the house this Halloween!

Submitted by Todd Kirchgraber of St. Petersburg, Fla.



Supernatural Events

Catch-22

So to translate, the bottom line is that we're just not getting a deal on our pizza, right?

Submitted by Shirley Toli of Venetia, Pa.



Not valid at participating stores

Breaking Up Is Always Hard to Do

We guess this is for people who really can't live with themselves.

Submitted by Chris McKeon of Brentwood, Calif.



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included

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saved an average of
\$2,954
off MSRP*



See your savings at [ConsumerReports.org/carsavings](https://www.ConsumerReports.org/carsavings)

*Between 7/1/15 and 9/30/15, the average estimated savings off MSRP presented by TrueCar Certified Dealers to users of the Build & Buy Car Buying Service, based on users who configured virtual vehicles and who TrueCar identified as purchasing a new vehicle of the same make and model listed on the certificate from Certified Dealers as of 10/31/2015, was \$2,954, including applicable vehicle specific manufacturer incentives. Your actual savings may vary based on multiple factors including the vehicle you select, region, dealer, and applicable vehicle specific manufacturer incentives which are subject to change. The Manufacturer's Suggested Retail Price ("MSRP") is determined by the manufacturer, and may not reflect the price at which vehicles are generally sold in the dealer's trade area as not all vehicles are sold at MSRP. Each dealer sets its own pricing. Your actual purchase price is negotiated between you and the dealer. Neither TrueCar nor Consumer Reports brokers, sells or leases motor vehicles. Service not available in Canada.

How to Use the Canada Extra Section

EVERY MONTH, Canada Extra provides Canadian pricing and availability information about products tested for that issue. The Ratings in this section are based on this month's reports, but they narrow your choices to the products that are sold in Canada.

You can use this section in either of two ways: Start with the main report, read about the products that interest you, and turn to this section to find whether they're sold—and for what price—in Canada. Or start here, find products sold in Canada whose price and overall score appear promising, and read more about them in the main report and full Ratings chart;

page numbers appear with each Canadian report. (For some products, the Canadian model designation differs slightly from the one used in the U.S.)

In most cases, the prices we list here are the approximate retail in Canadian dollars; manufacturers' list prices are indicated by an asterisk (*). Check marks identify CR Best Buys or recommended products in the U.S. Ratings. "NA" in a chart means that information wasn't available from the manufacturer. We include, in the Contact Info list on page 34d, the manufacturer's phone number and web address in Canada so that you can call or go online to get information on a model you can't find in the

stores. (Many products that aren't available in Canadian stores can be bought online.)

We appreciate your support, but we don't take it for granted. Please write to CanadaExtra@cu.consumer.org and tell us what you think. We can't reply to every email message or implement every suggestion, but with your help we'll try to keep growing to serve your needs.

- CR Best Buy** Products with this icon offer the best combination of performance and price. All are recommended.
- Recommended** Models with this designation perform well and stand out for reasons we note.

IN THIS SPECIAL SECTION

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Chevrolet Camaro

Generators

Nine of the top-scoring generators are available. **Report and Ratings, pages 14-17**

Rec. Rank	BRAND & MODEL	PRICE	Claimed Output (Watts)	Weight with Fuel (Lb.)	Run Time (Hr.) ^[1]	SCORE
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A. PORTABLE

<input checked="" type="checkbox"/>	1	Honda EU7000iSC ^[2]	\$4,780	5,500	292	8-16	79
<input checked="" type="checkbox"/>	2	Kohler PRO7.5E	\$1,900	6,300	290	10-15	73
<input checked="" type="checkbox"/>	3	Generac RS7000E	\$1,400	7,000	235	9-15	72
<input checked="" type="checkbox"/>	5	Honda EM65002C	\$3,400	5,500	273	8-13	70
<input checked="" type="checkbox"/>	8	Westinghouse WH7500E CSA	\$1,100	7,500	237	8-12	69
<input checked="" type="checkbox"/>	10	Generac GP5500 5939	NA	5,500	212	8-14	67
<input checked="" type="checkbox"/>	13	Yamaha EF7200DE	\$2,000	6,000	279	9-14	65

B. SMALL STATIONARY

<input checked="" type="checkbox"/>	1	Generac 6237	\$3,190	7,000 ^[4]	NA	336 ^[5]	91
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C. LARGE STATIONARY

<input checked="" type="checkbox"/>	2	Kohler 14RESAL	NA	12,000 ^[4]	NA	182 ^[5]	93
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NA=not applicable; stationary unit. ^[1] The average we measured over various loads. ^[2] Inverter model. ^[4] Claimed output is with natural gas; output with propane is 1,000 to 2,000 watts higher (as tested). ^[5] With 250-gallon liquid-propane tank; runs indefinitely with natural gas.



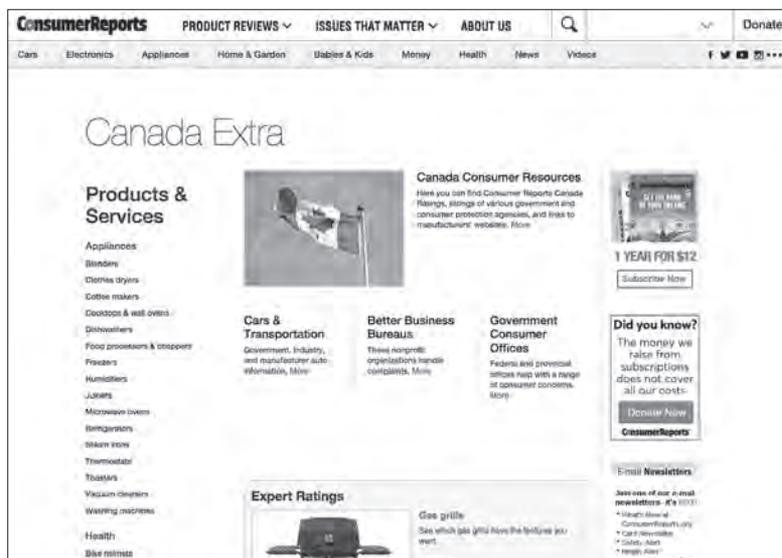
Honda EU7000iSC



Generac 6237

Canada Extra on the Web

Canada Extra information can be found on ConsumerReports.org, our website, along with the current issue of the magazine and more. Once there, click on the “Canada Extra” link on the opening screen. There you can see which reports have Canadian information available.



Recalls

2007-2009 Hyundai Santa Fe models

On certain vehicles equipped with a 3.3L V6 engine, the engine oil can leak onto the alternator, which could affect the charging system function and potentially cause the engine to stall and not restart. That would result in a loss of motive power, as well as affect power braking and power steering system function.

Models 49,845 vehicles.

What to Do Have the dealer replace the front valve cover gasket and repair/replace the alternator, as necessary, under a special service campaign.

2009-2010 Chevrolet Impala models

On certain vehicles, the front-passenger seat frame may damage the wires of the passenger presence sensor (PPS) module, causing it to fail to detect an occupant in the passenger seat and improperly suppress the front-passenger airbag. The damage could also cause the airbag fuse to short, disabling the airbags and seat-belt pretensioners.

Models 18,584 vehicles.

What to Do Have the dealer inspect the wiring and repair as necessary, as well as apply protective anti-abrasion tape. Note: If the passenger airbag is suppressed, the passenger airbag status indicator would indicate that the passenger airbag is off even when a passenger is sitting in the front-passenger seat. In addition, the "service airbag" message would be displayed in the driver information center (DIC). That could also cause the cluster gauges and DIC alerts to intermittently turn off or to not function properly.

2010-2011 Volkswagen Golf Wagon models

On certain vehicles, a fuse can overheat and damage the fuse box, causing a partial loss of exterior vehicle lighting.

Models 10,200 vehicles.

What to Do Have the dealer install a fuse of an updated design.

2010-2012 Toyota and Lexus models

On certain vehicles, a defect in the curtain shield airbags could cause the inflator to fail, releasing pressurized gas into the airbag and partially inflating it. Parts of the inflator could

also separate from the vehicle structure and enter the interior of the vehicle.

Models 12,926 2010-2012 Toyota Prius and 2011-2012 Lexus CT200H vehicles.

What to Do Have the dealer install a retention bracket, which will prevent the inflator parts from entering the vehicle interior.

2010-2015 Chevrolet and GMC models

On certain vehicles, water may drain from the windshield cowl area onto one of the windshield wiper transmission link joints, causing corrosion and/or wear to the joint. The wiper link ball could separate from its corresponding socket, rendering the windshield wipers inoperative.

Models 127,000 2010-2015 Chevrolet Equinox and GMC Terrain vehicles.

What to Do Have the dealer relocate the drain holes in the windshield cowl and install a wiper module with revised joints.

2011 Buick Regal models

On certain vehicles equipped with 8-way power adjustable front seats, the wiring harness of the power seats may contact the seat frame and chafe. Over time that could cause an electrical short and inoperative power-seat adjustments, flickering lights on the instrument panel, sparking, smoke, and potentially a fire.

Models 3,344 vehicles.

What to Do Have the dealer inspect, repair, and secure the wiring harness as necessary.

2013-2014 Ford F150 models

On certain vehicles, brake fluid from the master cylinder may leak into the brake booster, causing visual and audible warnings due to the low fluid level in the master cylinder. The driver may experience increased brake pedal travel, increased pedal effort, and extended stopping distances.

Models 43,682 vehicles.

What to Do Have the dealer replace the master cylinder. The brake booster will also be replaced if there is evidence that brake fluid has leaked into the booster.

2013-2014 Nissan Pathfinder models

On certain vehicles, the stop lamp switch may not have been installed properly, resulting in intermittent contact that could cause the switch

to repeatedly cycle on and off, stick in the on position, and cause the stop lamps to remain illuminated. That could also impair the brake-shifter interlock, allowing the vehicle to inadvertently be shifted out of the Park position.

Models 4,795 vehicles.

What to Do Have the dealer inspect the stop lamp switch for proper installation. If the switch is not installed correctly, it will be repositioned and the stop lamp relay will be replaced.

2014-2015 Chrysler, Jeep, and Ram models

On certain vehicles equipped with an automatic transmission, the transmission wire harness may have improper crimps that could cause an unexpected shift to Neutral, resulting in a loss of motive power.

Models 35,355 2015 Chrysler 200, 2014-2015 Jeep Cherokee, 2015 Jeep Renegade, and 2015 Ram Promaster City vehicles.

What to Do To be determined.

2014-2016 Infinity models

On certain vehicles, a combination of low battery voltage at engine startup (~7 volts) and the vehicle being parked with the wheels turned could cause an error in the Direct Adaptive Steering ECU. That could cause the steering wheel to be off-center and the Vehicle Dynamics Control (VDC) warning lamp to illuminate.

Models 3,804 Q50 and Q50 Hybrid vehicles.

What to Do Have the dealer update the Direct Adaptive Steering ECU.

2016 Kia Sorento models

On certain vehicles, the rear cross member assist arm bracket may not have been properly welded during the manufacturing process, potentially causing the welds to break, affecting the rear suspension alignment, and resulting in poor vehicle handling.

Models 1,286 vehicles.

What to Do Have the dealer inspect and replace the rear cross member assembly as necessary.

Kia Sorento



Autos

Three of the tested vehicles are available in Canada. **Report and Ratings, pages 62-64**

MAKE & MODEL	PRICE RANGE	ACCELERATION (SEC.)				FUEL ECONOMY (LITERS PER 100 KM)		
		0-50 KM/H	0-100 KM/H	80-100 KM/H	500 METERS	CITY DRIVING	HIGHWAY DRIVING	OVERALL
MIDSIZE SEDAN								
Chevrolet Malibu	\$21,745-\$32,045	3.3	8.9	4.0	19.0	12.4	5.7	8.2
COMPACT SUV								
Kia Sportage	\$24,895-\$39,595	3.7	10.2	4.5	20.0	15.0	7.3	10.2
SPORTS/SPORTY CAR								
Chevrolet Camaro	\$29,095-\$54,445	2.1	4.6	2.1	14.5	17.9	8.3	11.9



Chevrolet Malibu



Kia Sportage

Contact Info

How to reach manufacturers in Canada.

Generac

888-436-3722
generac.com

Kohler

800-544-2444
kohlergenerators.com

Honda

888-946-6329
powerequipment.
honda.ca

Westinghouse

855-944-3571
westpropower.com

Yamaha

yamaha-motor.ca