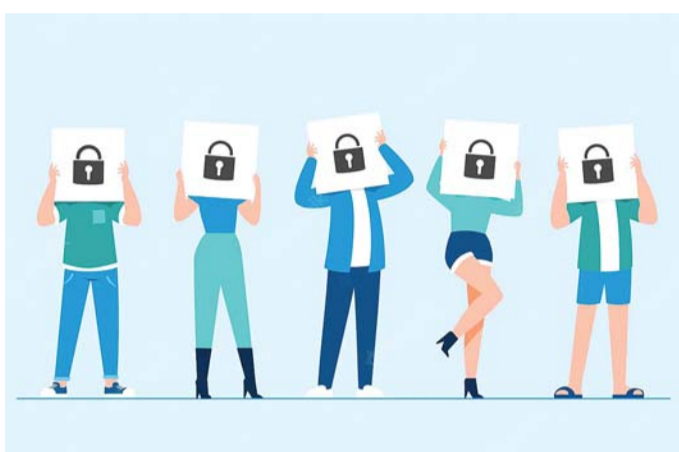


#LAW

AI To Protect Teen Privacy

What qualifies as confidential for a given patient is left up to the doctor's interpretation and therein lies a problem.



Natural language processing could help paediatricians draw the fine line between a teen's right to privacy and a parent's right to know. The algorithm then calculates a "risk score" to help physicians make their confidential determinations, improve compliance with the applicable laws, and expedite the manual review process.

Two laws, one new, the other on the books since the 1980s, have complicated the lives of paediatricians. The federal government's 21st Century Cures Act, among its many mandates, requires physicians nationwide make available to patients their complete electronic medical records. With the click of a mouse, all personal health information, test results, prescribed medications, and clinical notes must be accessible digitally for patient review.

Meanwhile, a confidentiality law in California simultaneously demands that paediatricians protect the privacy of their adolescent patients. That is, by law they must not divulge to parents certain details about their dependent child's mental health, sexual history, drug use, and other confidential information.

"Most states in the country have some form of confidentiality laws, so there is a conflict between the full disclosure in the federal law and the privacy protections of the state laws," says Keith Morse, a paediatrician who leads the Translational Data Science at Packard (TDA) program. TDA is specifically charged with exploring the rapidly emerging applications of machine learning to clinical care at Lucile Packard Children's Hospital.

What qualifies as confidential for a given patient is left up to the doctor's interpretation and therein lies a problem. Doctors often disagree about such matters and now these subtle distinctions are weighed in with medical consequence but with legal consequences, as well.

Into that maw have leapt Morse and a team of medical doctors, bioinformaticians, and computer scientists from Stanford University who have tapped artificial intelligence to help paediatricians flag potentially confidential information in their clinical notes for closer review to ensure compliance with both laws. The authors introduced their algorithm in a peer-reviewed paper that has been submitted for publication, and it is already in use by paediatricians at the Stanford Children's Health community.

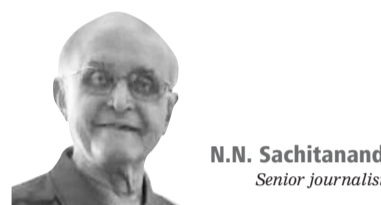
The fundamental issue is trust. "We want the patients, in this case teens, to feel that they can be fully open and honest with their doctors without worrying that their parents might learn personal details they would rather their parents not know," Morse says.

The algorithm then calculates a "risk score" to help physicians make their confidential determinations, improve compliance with the applicable laws, and expedite the manual review process.



"Newcomers to this city like you might be having a storybook idea about a pickpocket's appearance - you know the type of criminal seen in our films, with a leer on his face, a swagger in his gait and a bright red neck-cloth around his throat. Actually, pickpockets are very inconspicuous. Without experience you cannot make them out from the ordinary citizens. I have made a special study of them, so I can. Now, you see that innocent looking chap over there, in a black coat, reading a book. Well take it from me, he is a veteran pickpocket."

The Pickpocket



N.N. Sachitanand
Senior Journalist

Cousin Seenu said, in the manner of a guru, "You must be very careful about your purse in Bombay. Pickpockets abound in this metropolis and there is no telling where you one might bump into. The algorithm then calculates a "risk score" to help physicians make their confidential determinations, improve compliance with the applicable laws, and expedite the manual review process.

"It's a very fine needle we have to thread here," adds Naveed Rabbani, an engineer turned paediatrician at Stanford Medicine and lead author of the study. "Artificial intelligence can help make that key determination between what is confidential and what is necessary to provide the patient the very best medical care we can offer."

Doctor's Note

To build their algorithm and dataset, the researchers enlisted a team of five physicians to evaluate a randomly selected group of clinical notes from 1,200 adolescent patients aged 12 through 17. The physicians, a paediatrician who leads the Translational Data Science at Packard (TDA) program. TDA is specifically charged with exploring the rapidly emerging applications of machine learning to clinical care at Lucile Packard Children's Hospital.

The 1,200 records were dispersed evenly among the five doctors, with some overlap. Not all doctors agree on what constitutes "confidential" information, and the overlap helped the AI research team identify the interpretive gray areas.

The algorithm then evaluated new, never-before-seen notes for potential concerns, where it calculated the risk score and flagged content for the doctor's review. "The biggest surprise to me in this research was just how hard it is to determine confidentiality," Rabbani says. "The best care and patient disclosure are sometimes contradictory goals. That's where AI really helps."

The researchers anticipate that such an algorithm, if it was to achieve wider use, would work in real time as the doctor is entering notes-flagging content for immediate categorization as the notes are being transcribed.

With potential conflicts flagged and graded by confidentiality risk, the physician can quickly make an informed determination.

#STORIES

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Hunting Grounds

The gentleman indicated looked like an underpaid school-teacher, I was a bit sceptical. But Cousin Seenu was quite confident. "I can tell from experience, dear chap," he insisted smugly, "His book reading is only a front. Those seeming bifocals must be of plain glass. Under cover of reading he is actually sizing up potential victims. Note those long tapering fingers. No chalk pusher would have such fingers."

During all this discussion we had (we thought) been covertly staring

"Conductor," shouted Seenu excitedly, "I just caught this fellow in the act of removing a purse from the pant pocket of this old gent in front of him."



at the subject. Suddenly he glanced at us and caught us in the act. From that time on he became fidgety and nervous, often darting glances at us. "He knows we are on to him," murmured Seenu, with satisfaction. "Soon our station came and we got off. So did our suspect. As we followed him towards the exit, he kept glancing furtively back at us. Just then a young, hefty man accosted him with the words, 'Hello, professor! Where are you going in such a hurry?'"

The man gave a cry of relief and exclaimed, "Oh Ravi! I am glad to see you." Pointing to Seenu and me he continued, "These two characters have been following me for a long time. I do not like their intentions. Would you mind escorting me home?" "Certainly not, sir," replied the burly Ravi. "And as for these two fellows -", turning to us he growled, "What's the idea? Thinking of rob-

bing the old man?" It took a harried five minutes for Cousin Seenu to explain to the professor's watchdog that we were perfectly law-abiding citizens headed homewards. Wiping our brows we boarded our bus.

For some time Seenu was subdued. But that period of grace did not last long. "Buses," he started again, "are the favourite hunting grounds of the pickpocket. Usually they rifle your pockets while you are boarding or disembarking. Occasionally -"

Seenu stopped his lecture midway, gasped and clutched my arm. "Look at that man," he whispered hoarsely. And before I could restrain him, he lunged forward with a cry of, "Stop thief!" and caught hold of a young man standing a couple of feet ahead of us. Immediately there was a hubbub in the bus. The conductor stopped

the vehicle and hurried up to where Seenu was wrestling with the young man.

"Conductor," shouted Seenu excitedly, "I just caught this fellow in the act of removing a purse from the pant pocket of this old gent in front of him."

"Now, just a minute," expostulated the young man. "Call the police!" "Give him a beating!" were some of the excited comments from fellow passengers.

Then I noticed the old gentleman who was the supposed victim. He seemed about to have a fit. He burst out, "QUIET!"

He got his silence. With a flushed face he continued, "This young man is not a pickpocket. He is my son. I asked him to remove my purse to pay for the tickets since both my hands were occupied."

Then turning to a crestfallen Seenu he bellowed, "You brainless nincompoop! How dare you -"

A Lesson For You

I prefer to draw a veil over the next quarter of an hour. As we got down at our stop, a flushed Seenu exclaimed, "How the devil was I to know that the fellow was that old badger's son? Anyhow, it is a lesson for you. You see how easy it is for your pocket to be picked in a bus."

"Yes," I agreed. "That's why I keep my money in a special pocket on the inside of my pants."

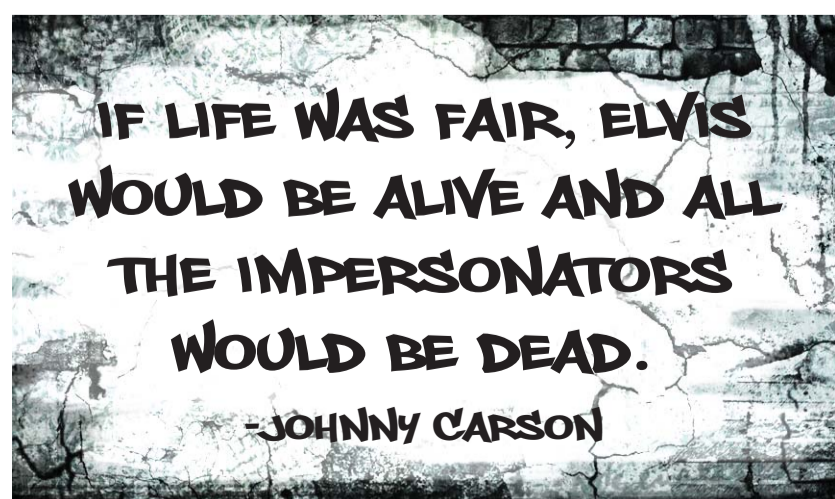
Seenu nodded condescendingly and said, "Well, that is all right for newcomers to the city. Now, I carry my purse in my hip pocket. You see, I can always feel the tug if anyone tries to extricate it. See here -" and his hand went to his hip pocket.

A moment later he gasped. "What's the matter?" I queried. "My purse!" Wailed Seenu. "It's gone. I have been pick-pocketed!"

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THE WALL



BABY BLUES

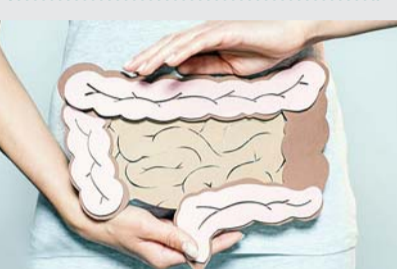


By Rick Kirkman & Jerry Scott

#LIFESTYLE

Your Bathing Habits Can Affect Digestion

Experts suggest that a glass of warm or room temperature water before a shower can help lower blood pressure-related issues in the body.



Our elders often advise us to not take a bath after meals. Turns out, Ayurveda also strongly recommends against it. But, there's more - it is not just taking a bath, experts say that certain other bathing habits, which are extremely common, have the potential to affect the digestive system and overall health. Our body works in complex ways and all our actions have potential consequences; bathing rituals are certainly one of those.

Three things one must always keep in mind when taking a shower are:

Ensure to drink a glass of water before taking a shower. Experts suggest that a glass of warm or room temperature water before a shower can help lower blood pressure-related issues in the body. Drinking warm water warms your body from the inside which results in the widening of blood vessels, allowing more blood to flow through them; thus lowering the blood pressure. This results in a similar circulatory system dilation on the skin's surface.

Never take a shower after having a full meal. It weakens the digestive fire, which is a warm energy in your stomach and gut that aids digestion, absorption, and assimilation of nutrients. After eating, the body rushes blood to the digestive system to



help in the digestion process. As such, taking a shower distracts this blood flow from the stomach and rushes it instead to the surface of the skin.

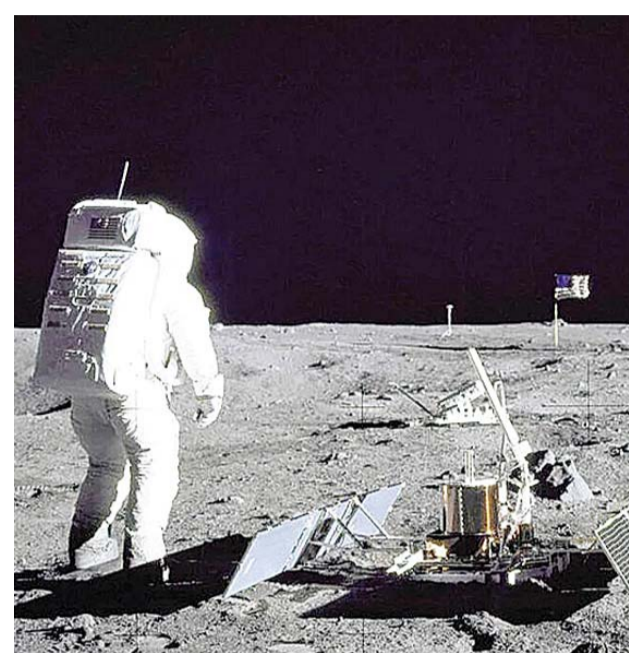
Considering these effects, it may be ideal to take a bath at least an hour after a meal. In contrast, taking a bath before a meal makes your body rejuvenated and energised.

Avoid taking a shower after sunset: Our body starts to cool down after sunset, which is a signal that it's time for bed. The expert explained that taking a shower before bed can block the skin pores trapping the body heat within. This can cause a rise in body temperature which can actually disrupt this signal and your night's sleep in the process.

#SPACE

Human Garbage In Space

We're already dumping a ton of trash on Mars-and we haven't even set foot on it yet.



The next time you see a place like Mars can't always rely on regular resupply missions. As such, they need to be able to repurpose any and all materials they have at their disposal. The challenge marked the beginning of answering a question that's becoming more and more relevant as NASA embarks on its bold goal of going back to the moon and, eventually, Mars and beyond: What the hell are we going to do with all our extra-terrestrial garbage? After all, astronauts won't be able to just yeet it back to Earth like those on the ISS.

Undoubtedly, the grossest category of the challenge involved

ability. Future astronauts on a place like Mars can't always rely on regular resupply missions. As such, they need to be able to repurpose any and all materials they have at their disposal. The challenge marked the beginning of answering a question that's becoming more and more relevant as NASA embarks on its bold goal of going back to the moon and, eventually, Mars and beyond: What the hell are we going to do with all our extra-terrestrial garbage? After all, astronauts won't be able to just yeet it back to Earth like those on the ISS.

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atmosphere on Earth. But it's the only one we have right now. That might sound change if Steve Sepka has anything to do with it.

"One of the great ways to deal with trash and waste is to compact it," Sepka said. "We're getting microbes to do it and what to do with leftover materials. It's very similar to what we do on Earth."

Another involved using poop as a natural fertilizer like Mark Watney growing potatoes in 'The Martian'. As with so much science fiction before, it could have real world use cases once researchers and engineers get

to Mars into usable material. The emphasis was on sustain-

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By Jerry Scott & Jim Borgman

ZITS

