ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

Editing a Doctor's Essay: Making it into a Blog Post

Title: Evidence-Based Medicine, in-flight emergencies, and the responsibility of airlines

Before editing	**After editing:** ***I've shortened the sentences and paragraphs, added sub-headings and bullet points (so you can skim the post and still get a sense of what it says), and added drama.***
Akshay Sharma details, in a courageous first person account in the National Medical Journal of India, his experience of dealing with a medical emergency in a four year old child who was unresponsive and dehydrated due to repeated vomiting after a pre-boarding airport snack, while on a trans-Atlantic flight 30,000 feet above sea level.1 As an itinerant traveler, and having been caught in similar predicaments, I commend Akshay for his	**Imagine you're the only doctor on a trans-Atlantic flight.** The airhostess comes to you with an unresponsive and dehydrated 4-year-old who is repeatedly vomiting after a pre-boarding airport snack. You tele-link with a Medilink ground team which tells you to try a conservative approach, but something tells you that this is not the answer. *Give the child intravenous fluid* is the single thought that

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

courage in responding to the medical emergency and upholding the integrity and ideals of the medical profession so far removed from the safe confines of a well-equipped hospital. I admire his candor in admitting his initial reluctance to get involved in a potentially critical situation, fraught as it was with medico-legal implications and the possibility of public embarrassment. In the real world, heroic acts are often spawned from fear or compulsion, but completion of the act in the manner that Akshay did, in taking a carefully considered decision that led to the safe recovery of the ill child, speaks of quiet confidence in his own abilities and limitations, given the constraints imposed by his situation.

Akshay suggests that his action, of securing

goes round and round in your head.

You're 30,000 feet about sea-level and have an important decision to take. Do you go with the ground team's suggestion? Or do you trust your gut?

The mother looks on in desperation. The passengers wait for you to respond. The tension is palpable.

This was Akshay Sharma's potentially critical situation.

He narrates his story in an honest, heartfelt narrative in the National Medical Journal of India. He shares the doubts and fears he had to battle as well as his initial reluctance to get involved in a potentially critical situation.

Mr. Sharma finally chose a course of action which he feared was not 'evidence-based'. He went with his

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

intravenous access and providing intravenous fluids to the child, contrary to the advice provided by the Medilink ground team contacted by the aircrew by tele-link to initially try a conservative approach, was not "evidence-based". I submit that this is not necessarily true and is based on an interpretation that evidence-based medicine only concerns the incorporation of external evidence (ideally from systematic reviews of interventional trials) as the sole basis for medical interventions. The true linchpin of Evidence-Based Medicine, or more appropriately "Evidence-Informed Healthcare" is the astute clinician who has the skills to rapidly and accurately diagnose the clinical condition and consider prognostic issues; the

gut. And the child recovered.

So, where does that leave evidence-informed healthcare?

Akshay's story brings out an important point.

Yes, evidence-informed healthcare is about having external evidence (ideally from systematic reviews of interventional trials); but equally important, it's about how you apply that evidence.

Good evidence-informed healthcare involves:

- Rapidly and accurately diagnosing a clinical condition and identifying the issues involved
- Accessing the best available evidence and interpreting its reliability
- Deciding how to apply the evidence to treat a patient based on variables 'in the field' such as

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

expertise to access and interpret the reliability of the best available evidence; and to assess the applicability of the evidence within the context and constraints of healthcare provision. The wishes of the patient and his or her family would also be important, 2though less pressingly so in a medical emergency.3

In his report Akshay demonstrated all the essential attributes of evidence-informed health decision making: by assessing various interventional options based on the uncertain probability (unstated in the report) of oral Promethazine acting rapidly enough to prevent further vomiting, worsening dehydration, and leading to a situation where securing intravenous access in the four-year old could pose difficulties. In clinical situations, the wishes of the patient and his/her family.

Askhay used sound evidence-informed health decision making.

In clinical situations, particularly in emergencies, Bayesian logic is called into play: assess the multiple parameters, their probabilities of occurring, and the likelihood of success. Then treat. This is different from the more linear approach often followed in classical evidence-based medical teaching.

So Akshay did well in making a decision based on the uncertain probability (unstated in the Medilink report) of oral Promethazine acting rapidly enough to prevent further vomiting, worsening dehydration and leading to a situation where securing intravenous access in the four-year old could pose difficulties.

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

particularly in emergencies, one tends to use Bayesian logic based on one's assessment of multiple parameters, their probabilities of occurrence, and the likelihood of success with different interventions to decide on options, rather than the more linear approach often followed in classical evidence-based medical teaching.

What might have reassured Akshay in this crisis was the opportunity to discuss his reasoning and to have this approved by the Medlink ground team. This facility is not always available on all airlines, and in the three instances I was reluctantly thrust in to responding to in-flight emergencies, fellow "medical" passengers turned out to be laboratory personnel, or those who pleaded

Perhaps he would have been reassured if he had the chance to discuss his reasoning and to have it approved by the Medilink ground team.

Which brings us to the airlines. . .

Airlines don't always have the means to deal with in-flight emergencies.

On 3 separate occasions I've had to handle situations in far-from-ideal circumstances. I was reluctantly thrust into them when fellow "medical" passengers turned out to be laboratory personnel or those pleading inexperience.

In all 3 situations, the aircrew did not have access to more experienced help and they began questioning my abilities when my "interventions" were not immediately successful. The fact that I'm a

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

inexperience, leaving me, a psychiatrist, to deal with the emergencies! Fortunately the emergencies were self-limiting (food poisoning in an adult that settled with conservative management; an epileptic seizure in an adult on a transatlantic flight caused by sleep deprivation and irregular anti-epileptic medication that required only masterly inactivity and advancement of the scheduled antiepileptic dose; and an unresponsive elderly gentleman who came around from a syncope after a few minutes of ensuring airway patency with an Ambu-bag). In all three situations, the aircrew did not have access to more experienced help; and they seemed uncomfortable at my abilities to deal with the situation when my “interventions”	Psychiatrist didn’t help. :) In all 3 instances, the calmer I appeared on the outside, the more of a wreck I was inside. I distinctly remember praying for divine intervention, hoping the height we were at would ensure better communication with the Almighty. In all 3 situations, I too, like Akshay, was a reluctant ‘volunteer”. I was pushed forward by nosy, but well-meaning, co-passengers who had “discovered” my profession and sought free medical advice at the expense of my forfeiting the privilege of free liquid refreshments and in-flight movies! But, in all 3 instances, the aircrew rewarded my contributions by bumping me up to business class, or providing me with voucher upgrades, or by ” permitting” a long chat with an admiring airhostess!

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

were not immediately successful, since I had declared I was a psychiatrist. In all three instances, my internal turmoil was inversely proportional to my external calm and sense of control I endeavored to convey, while issuing volleys of prayers for divine intervention and hoping the height we were at would ensure better communication with the Almighty. In all three situations, I too, like Akshay, was a reluctant 'volunteer", whose decision to volunteer was taken for me by nosy, but well-meaning, co-passengers who had "discovered" my profession and sought free medical advice for their ailments, at the expense of my forfeiting the privilege of free liquid refreshments and in-flight movies! Also in all three instances, the aircrew rewarded my

So I can't complain.

On another occasion though, in Mumbai airport in 2002, a middle aged gentleman dropped unconscious with a heart attack in the transit terminal at around 3 AM. A fellow passenger and I tried to resuscitate him but were unsuccessfully and gave up after 20 minutes. There were no medical facilities or medical emergency equipment on site and emergency medical personnel summoned arrived too late to do any good.

So, what preventive measures should airlines take?

With increasing global travel, airlines and airports need to stop relying on passengers who are medical personnel.

Airlines need to:

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

contributions by bumping me up to business class, or providing me with voucher upgrades, or by " permitting" a long chat with an admiring airhostess! A more disastrous outcome occurred in Mumbai airport in 2002, when on arrival from an overseas trip, and while awaiting a domestic transit flight, a middle aged gentleman dropped unconscious with a cardiac arrest in the transit terminal at around three am. A fellow passenger and I attempted cardiopulmonary resuscitation unsuccessfully and gave up after 20 minutes. There were no medical facilities or medical emergency equipment on site and emergency medical personnel summoned arrived too late to do	• Train their aircrews to deal with medical emergencies • Supply emergency equipment • Provide evidence-based emergency manuals for reference, • Offer tele-links to emergency medical help • Educate passengers on medical precautions to be followed on long-haul flights Airports should: • Have emergency help available round the clock • Display contact numbers prominently • Check response times • Clinically audit responses and outcomes • At the time of booking, identify medically trained passengers who are willing to help in medical emergencies, provide them with

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

any good. In today's world of increasing global travel, airlines and airports that rely on the fortuitous presence in their passenger lists of trained medical personnel willing to help in emergencies is simply not good enough. Airlines need to ensure that their aircrews are trained to deal with medical emergencies, emergency equipment and supplies are on board, evidence-based emergency manuals are available for reference, and tele-links to emergency medical help are routinely available. Passengers should be provided with precautions to be followed to prevent medical mishaps on long-haul flights, and the facilities available to deal with them, should they occur. All airports should have emergency help	additional training, and reward them for their services with frequent flyer benefits **What can Cochrane do?** We need to evaluate the effectiveness of the above (and additional) measures. I could not find a Cochrane systematic review in *The Cochrane Library* on "Interventions to prevent adverse outcomes during in-flight or in-transit medical emergencies", though there is a Cochrane systematic review on the use of "Compression stockings for preventing deep-vein thrombosis in airline passengers"; and another on, "Melatonin for the prevention and treatment of jet lag". Both interventions are recommended by the reviews, by the way.

ROHAN THARYAN
CONTENT WRITER
MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

available round the clock, response times checked, contact numbers prominently displayed and clinical audits undertaken on responses and outcomes. Medically trained passengers who are willing to help in medical emergencies could be identified a priori, or at the time of booking tickets, and provided with additional training and frequent flyer benefits for enrolment and for services rendered.

Finally, the institution of these measures, and additional ones, highlighted by Akshay's courageous act and article as necessary interventions, on the reduction in undesirable outcomes after in-flight and in-transit medical emergencies should be properly evaluated. I could not find a Cochrane Systematic review in The Cochrane Library on "Interventions to

The Cochrane Library could also provide a collection of reviews pertaining to travel medicine in addition to the current collections they display on their home page.

What can young medical professionals do?

- They can join Informer, a student initiative (and incidentally founded by Akshay Sharma) that helps medical students to understand and to contribute to research.
- They can also explore the Cochrane Student's Journal Club (another of project Akshay has guided).

If more of "tomorrow's doctors" display the kind of initiative and enthusiasm towards the medical profession and the use of reliable evidence that Akshay and his young colleagues do, then the rest of us can rest easy that the ideals of our profession will

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

prevent adverse outcomes during in-flight or in-transit medical emergencies", though there is a Cochrane systematic review on the use of "Compression stockings for preventing deep-vein thrombosis in airline passengers", 4 and another on, "Melatonin for the prevention and treatment of jet lag".5 Both interventions are recommended by the reviews. The Cochrane Library could also provide a collection of reviews pertaining to travel medicine in addition to the current collections they display on their home page. As an aside, Akshay Sharma is one of the founding members of Informer (http://www.informer.org.in/), an initiative of medical students that seek to improve the ability of medical students to understand, and	be nurtured and health outcomes improved; and enjoy more fully the benefits of international air travel.

ROHAN THARYAN
CONTENT WRITER

MOBILE: +91-96001-68194 • E-MAIL: rohan@rohantharyan.com
PORTFOLIO: https://www.rohantharyan.com

to contribute to, research. He is also one of the guiding lights behind the Cochrane Student's Journal Club (http://csjconline.informer.org.in/). If more of "tomorrow's doctors" display the kind of initiative and enthusiasm towards the medical profession and the use of reliable evidence that Akshay and his young colleagues do, then the rest of us can rest easy that the ideals of our profession will be nurtured and health outcomes improved; and enjoy more fully the benefits of international air travel.	