

ThatGPTeacher and Cerebral Classmate

Speaker: [Prof. CHEN Zhi Xiong](#)
NUS Medicine

Abstract: In my talk, I will highlight features of NUS interim policy on AI in education through the lens of a fellow educator and student. We will explore its relevance in the context of healthcare and humanity's strengths needed to steer AI.





- Can you ban a classmate who is smarter than you?
- Can you ban a teacher who is more knowledgeable than you?

YOU



- If you copy from your smarter classmate, should you ban your classmate?

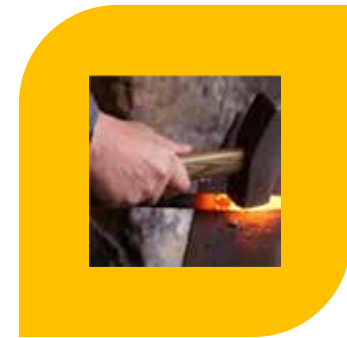
So, how do you interact with this classmate?



LEARN



COLLABORATE



CHALLENGE

How should you NOT interact with this classmate?

Plagiarize

(Even if AI does not own the work)

Over-rely

(Do not surrender your gifts and autonomy)

A large lecture hall filled with students, mostly of Asian descent, seated in rows of orange and yellow chairs. In the foreground on the right, a woman with dark hair, wearing a floral-patterned sleeveless top, is smiling broadly and holding a black microphone. The background shows a stage area with two large projection screens displaying text and a glass-paned door. The ceiling has recessed circular lights.

What do future students need?

Don't learn for the sake of doing but for the sake of knowing

Greater sense of responsibility and moral intelligence

Greater wisdom and higher order thinking

What should future educators do?

Design

- assessment in the context of AI

Instill

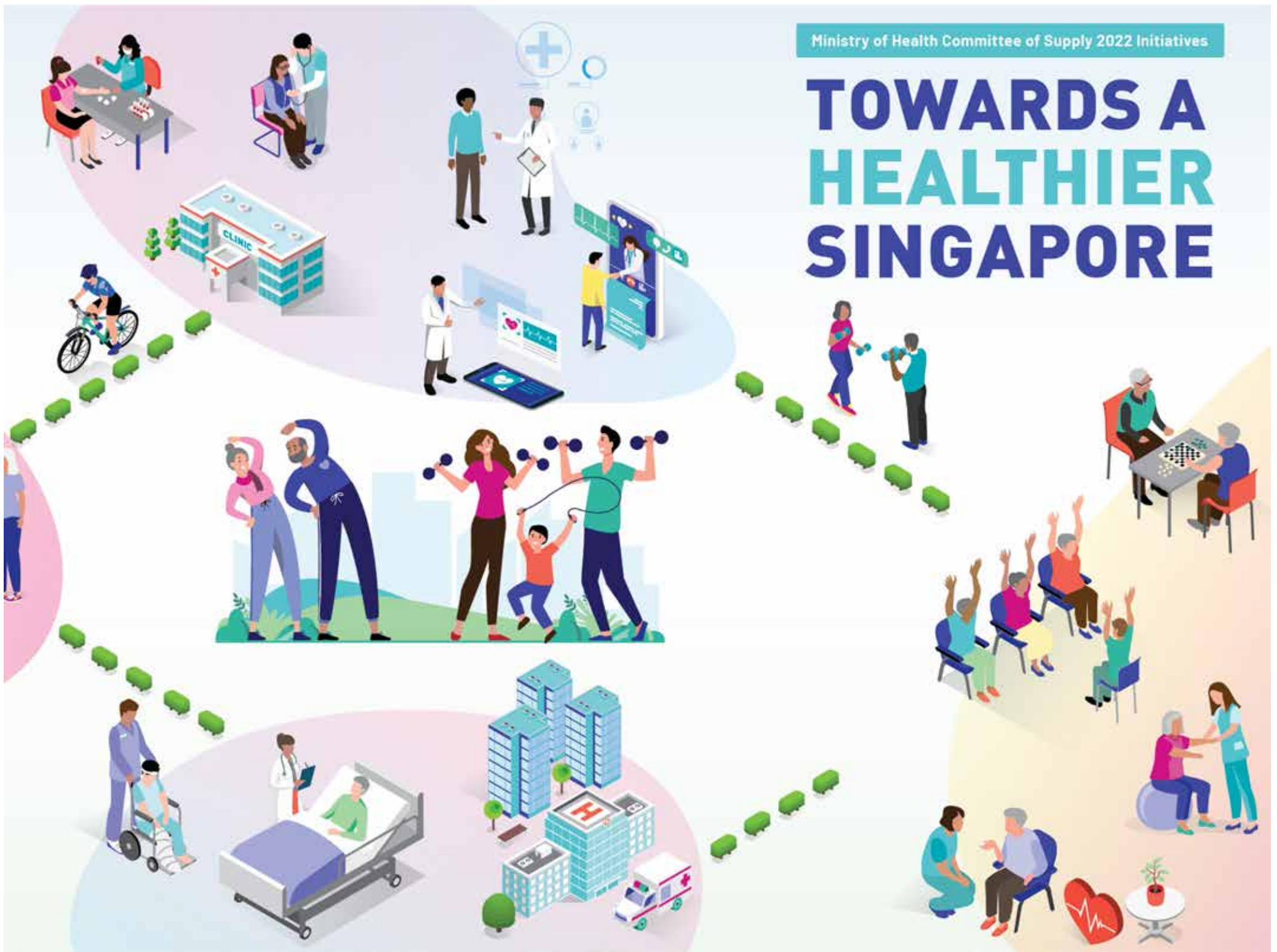
- stronger values and higher order thinking

Differentiate

- work generated by students with and without AI

and by creating an environment that fosters such values,

TOWARDS A HEALTHIER SINGAPORE



Virtual Doctor? Not quite...

Z

I am a 15 year old boy with Type I diabetes. For the past 2-3 days, I had a stomach upset and vomited again and again. I stopped taking insulin injections as I wasn't able to eat. Do you think I'll be ok?

I went to the A&E yesterday as I was still vomiting. The doctor said everything was ok and I didn't have this thing called diabetic ketoacidosis. He said there was nothing seriously wrong with me. He gave some anti-vomiting medication and asked me to go home. He told me to start injecting myself with insulin once the vomiting stops.

Is this advice ok?



As an AI language model, I am not qualified to provide medical advice. However, I strongly recommend that you follow the advice of the medical professional who assessed you in the A&E. They are the most qualified person to provide medical advice and treatment for your condition.

It is crucial to take insulin regularly and maintain stable blood sugar levels to manage Type 1 diabetes effectively. When you are sick and vomiting, your body may have difficulty absorbing the insulin you take, which can increase your risk of diabetic ketoacidosis. It is also possible that your vomiting may be a symptom of diabetic ketoacidosis, which requires immediate medical attention.

Please follow the doctor's advice to take the anti-vomiting medication and restart your insulin injections once the vomiting stops. It is also important to monitor your blood sugar levels closely and seek medical attention if your condition worsens or if you experience any unusual symptoms.

Virtual Doctor? Not quite... but can be trained.

Z

A 15 year old boy was a known case of Type I diabetes mellitus. For the previous 2-3 days, he developed a gastrointestinal upset which caused repeated vomiting. He decided to stop giving himself insulin injections, reasoning that without food intake it would be dangerous to do so. A day later, he went to the A&E department of a neighbourhood hospital when the problem persisted. At the hospital, the attending physician decided to assess the acid-base status of this patient, fearing that diabetic ketoacidosis might have set in.

The laboratory results were as follows:

Plasma pH 7.39 (normal 7.35-7.45)

Plasma bicarbonate 25 mmol/L (normal 20-32)

Plasma pCO₂ 41 mmHg (normal 35-45)

The A&E doctor reassured the boy that there was nothing seriously wrong and sent him home with medications to stop the vomiting and instructing him to re-start the insulin once vomiting stops.

Discuss the approach of the A&E doctor.



The approach of the A&E doctor in assessing the acid-base status of the 15-year-old boy with Type 1 diabetes and gastrointestinal upset is appropriate. The doctor recognized the possibility of diabetic ketoacidosis, a life-threatening complication of uncontrolled diabetes characterized by high blood sugar, high ketone levels, and metabolic acidosis. In diabetic ketoacidosis, the body produces high levels of ketones, which can lower blood pH and cause metabolic acidosis.

The laboratory results provided show that the boy's plasma pH is within the normal range (7.35-7.45), and his plasma bicarbonate level is also within the normal range (20-32 mmol/L), indicating that he does not have metabolic acidosis. The plasma pCO₂ level (41 mmHg) is slightly elevated but still within the normal range (35-45 mmHg), suggesting that the boy is not experiencing respiratory acidosis.

Based on these results, the A&E doctor made the correct decision to reassure the boy that there was nothing seriously wrong and to provide medications to stop the vomiting. The doctor also instructed the boy to restart insulin once the vomiting stops, which is crucial to prevent high blood sugar levels and the risk of diabetic ketoacidosis.

Overall, the A&E doctor's approach in assessing the boy's acid-base status, considering the possibility of diabetic ketoacidosis, and providing appropriate treatment is in line with standard medical practice. It is essential to closely monitor the boy's condition and follow up with further medical care as needed.

A photograph of a group of young women, likely healthcare students, interacting with an elderly woman in a home setting. The students are wearing white uniforms with blue accents. The elderly woman is wearing a black hijab and a green patterned top. They are all smiling and engaged in a conversation. The background shows a typical home interior with a window, shelves, and various household items.

Future healthcare providers will need to

Provide

More human touch
because

- Anthropomorphic \neq Human

Work

More closely together
because

- There will be more 'expert patients'

Be

More interdisciplinary
because

- Contexts will be increasingly important in differentiating AI vs human practice

Education

- Can be used to differentiate learning
 - Foundational learners can benefit from basic knowledge
 - Intermediate learners can critique output to advance their learning

Z

An elderly man developed congestive heart failure. Before treatment was initiated, he was found to have a plasma sodium concentration of 129mmol/L (normal 135–145). Explain the low plasma sodium concentration seen in this patient.



The low plasma sodium concentration in the elderly man with congestive heart failure is likely due to a condition called hyponatremia. Hyponatremia is a common electrolyte disorder in which the concentration of sodium in the blood is lower than normal, typically below 135 mmol/L.

In congestive heart failure, the heart's ability to pump blood is weakened, leading to a decrease in blood flow to vital organs such as the kidneys. This can cause the kidneys to retain more water than necessary, leading to dilution of sodium in the blood and resulting in hyponatremia.

Additionally, some medications commonly used to treat congestive heart failure, such as diuretics, can also contribute to hyponatremia by increasing urinary sodium excretion and further reducing sodium levels in the blood.

Hyponatremia can cause a variety of symptoms, including nausea, headache, confusion, seizures, and in severe cases, coma and death. Treatment of hyponatremia involves addressing the underlying cause, such as reducing fluid intake, adjusting medication doses, or treating the underlying heart failure. In severe cases, intravenous fluids or medications may be needed to raise sodium levels in the blood.

Education

Educators will shift from information providers to information discerners.

From: XXX

Date: Thursday, 23 February 2023 at 10:38 AM

To: Chen Zhi Xiong <zhixiong_chen@nus.edu.sg>

Subject: Question regarding hyper/hypocalcemia

Dear Prof Chen,

I am XXX from M1! I realised that I didn't really catch what you mentioned about whether high pH will lead to hyper or hypocalcemia and so I tried to google and ChatGPT and got very different answers 😓 I recall that H^+ competitively binds to albumin and hence so high pH would mean more Ca^{2+} binding and hypocalcemia. However ChatGPT says that metabolic alkalosis can also increase the sensitivity of the parathyroid glands to calcium levels, leading to an even greater secretion of PTH and a further increase in blood calcium levels (along with compensatory increase in Ca^{2+}) which leads to hypercalcemia. My friend's attempt at ChatGPT even said that Ca^{2+} binds with H^+ ?? Google also said something about high pH leading to Ca^{2+} precipitating out with PO_4^{3-} at lower amounts? I'm just very confused which answer and explanation is correct 😓

Thank you so much in advance! 😊

Sincerely,
XXX



Research

- Generate ideas and directions
- Able to customize with right prompts
- Informs what have been done or are known

But may be:

- Biased
- General
- Outdated
- Inaccurate

Research



I have milk, sake, yoghurt, cheese and chocolate in my fridge. What should I make for dinner?



With the ingredients you have, you could make a delicious and unique dish: Sake and Cheese Fondue with Chocolate-Dipped Fruit for dessert.

Here's how to make it:

Sake and Cheese Fondue:

Ingredients:

- 1 cup sake
- 1 cup shredded cheese (such as Gruyere, Emmental, or Fontina)
- 1/4 cup plain yogurt
- Salt and pepper, to taste
- Bread or vegetables, for dipping

Instructions:

1. In a small saucepan, heat the sake over medium heat until it comes to a simmer.
2. Add the shredded cheese and stir until it is melted and smooth.
3. Stir in the yogurt and continue to cook until the fondue is heated through and smooth.
4. Season with salt and pepper to taste.
5. Transfer the fondue to a fondue pot or serving dish and serve with bread or vegetables for dipping.

Chocolate-Dipped Fruit:

Ingredients:

- Assorted fruit (such as strawberries, bananas, or pineapple)
- 1/2 cup chopped chocolate (milk or dark)

Instructions:

1. Wash and dry the fruit, and cut it into bite-sized pieces.
2. Melt the chopped chocolate in a double boiler or in the microwave, stirring frequently.
3. Dip the fruit pieces in the melted chocolate and place them on a parchment-lined baking sheet.
4. Chill the chocolate-dipped fruit in the fridge until the chocolate is set.
5. Serve the chocolate-dipped fruit alongside the fondue for a delicious and unique dessert.

Enjoy your sake and cheese fondue with chocolate-dipped fruit for a fun and flavorful dinner!

The background of the slide is a top-down photograph of various Japanese food takeaways arranged on a light-colored wooden table. There are several open cardboard boxes: one containing fried croquettes (tempura) on green leafy vegetables, another with green peas, a third with tempura shrimp and vegetables, and a fourth with rice, broccoli, and a fried chicken cutlet. To the right, there is a container of sushi rolls, a small bowl of soy sauce, a small bowl of pickled ginger, and a box of spaghetti with mushrooms and red peppers. A wooden spoon and a pair of chopsticks are also visible on the table.

Takeaways

- Work and live with it but do not idolize it.
- Focus on developing humans as AI humanize.
- Master and harness it but do not succumb to it.