

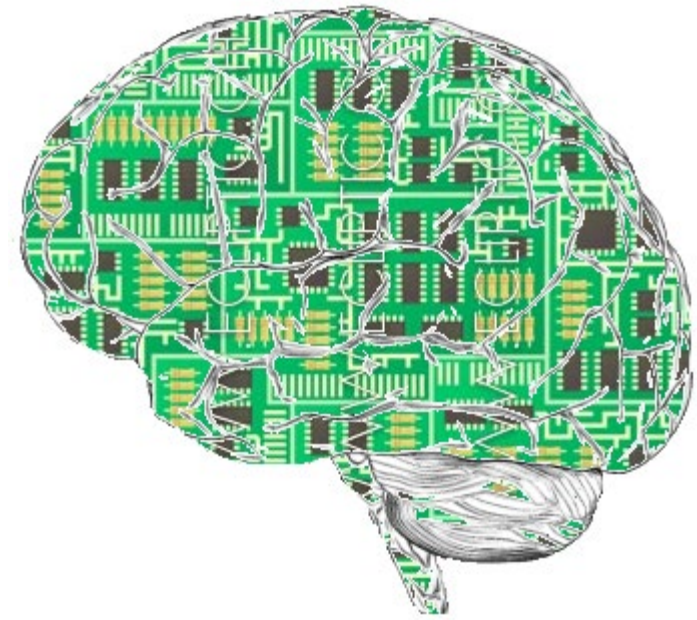
Ethical challenges in the use of AI in **healthcare** and **academia**

Mike South

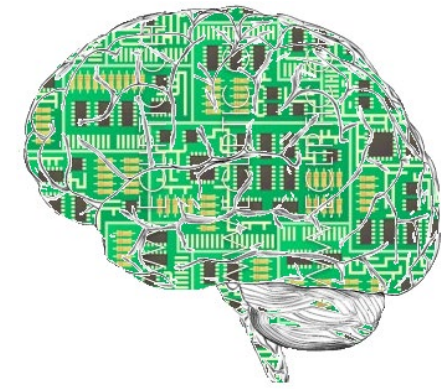
Paediatrician, Chief Medical Information Officer
Royal Children's Hospital, Murdoch Children's Research Institute,
Dept Paediatrics, Uni Melbourne

Julian Koplin

Lecturer at the Monash Bioethics Centre



Ethical challenges in the use of AI in **healthcare**



Should you be excited or concerned if your doctor uses AI tools when providing your healthcare?



Preparation?



Make me a powerpoint presentation with 10 slides in dot point format for a presentation to my colleagues about the ethical issues surrounding the use of AI in healthcare



Of course, while I cannot directly create PowerPoint slides for you, I can help you structure the content for your presentation. Below are the outlines for 10 slides:



ChatGPT

Slide 1: Title Slide

- "Ethical Issues Surrounding the Use of AI in Healthcare"
- Your name and date

Slide 2: Introduction

- Definition of AI in healthcare
- Brief overview of AI applications in healthcare planning and delivery
- Importance of ethical considerations

Slide 3: Ethical Principles

- AI requirements for ethical use
- Potential risks and benefits
- Anonymity and data protection
- Consent and patient autonomy

Slide 4: Bias and Fairness

- AI models can inherit biases from training data
- Potential for reinforcing stereotypes (e.g., racial, gender, socioeconomic)
- Importance of diverse and representative training data

Slide 5: Clinical Decision-making

- Difference between AI-assisted vs. AI-driven decisions
- Potential over-reliance on AI
- Ensuring clinicians remain the final decision-makers

Slide 6: Accountability

- Determining responsibility in case of AI-driven errors or malfunctions
- Challenges in explaining AI decisions ("black box" issue)
- Legal implications and malpractice considerations

Once you've set up the slides in PowerPoint or any other presentation software, you can add relevant images, graphics, or animations to enhance the visual appeal and maintain audience engagement. Ensure that the points are concise and clear to communicate effectively with your colleagues.

Slide 9: Access and Equity

- Potential for AI to widen healthcare disparities
- Ensuring equal access to AI-driven care irrespective of socioeconomic status
- Considering the digital divide and global disparities

Slide 10: Conclusion and Way Forward

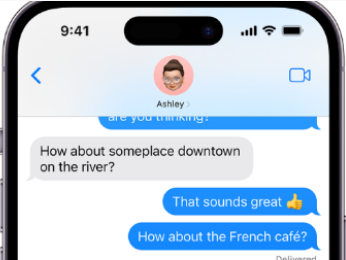
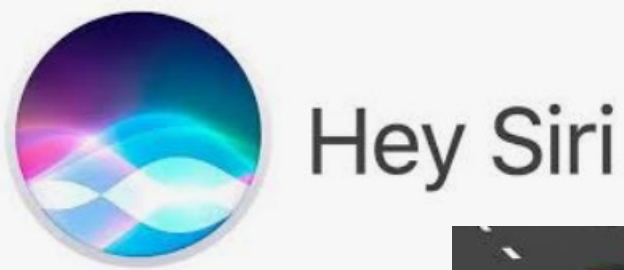
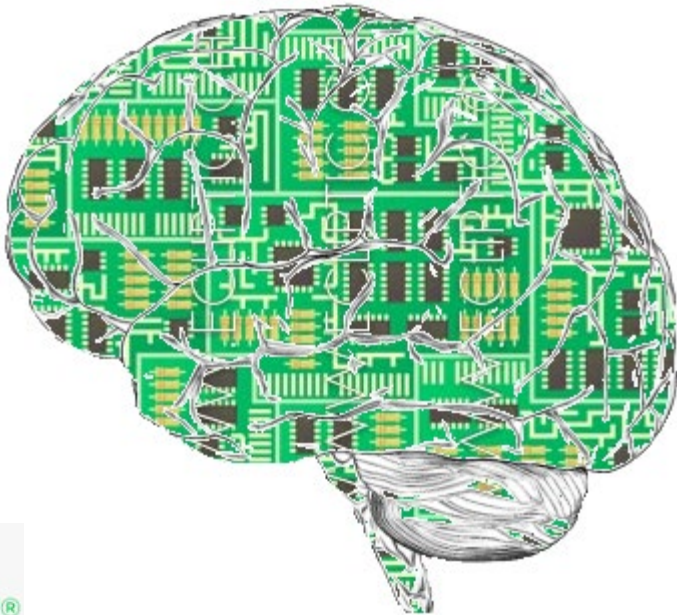
- The undeniable potential of AI to revolutionize healthcare
- The need for ongoing interdisciplinary discussions
- Encouraging ethical design, deployment, and oversight of AI tools

...ions or tasks
...healthcare workers
...ood
...orkings
...and AI tools

Artificial Intelligence - Intro

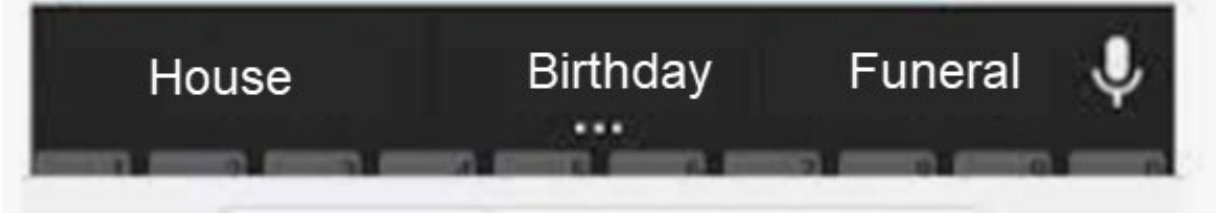
Computer software that mimics aspects of human intelligence.

Term was conceived in Oxford in 1957



+

Are you coming to Grandma's

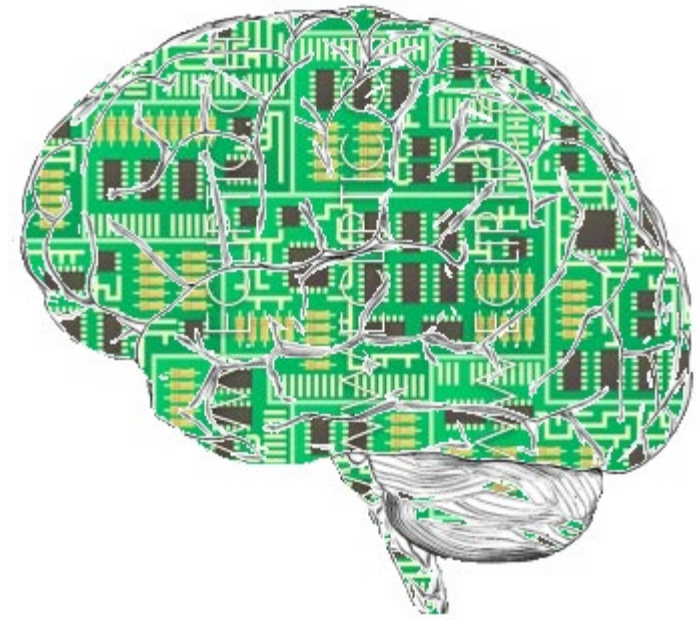
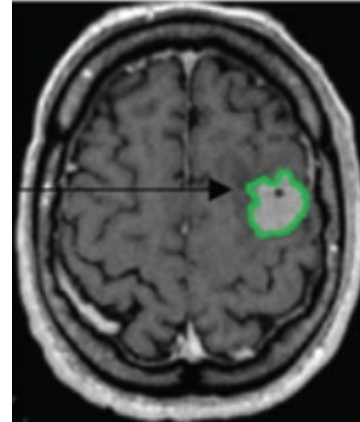


Artificial Intelligence - Types

Narrow Intelligence

Specific tasks.

Generate a hospital discharge summary
Recognising diabetic eye complications
Look for tumours on an MRI Scan
Faster / better



General Intelligence

Many tasks

human-like intelligence: learn and adapt to new situations,
think abstractly, reason, and solve problems.

Superintelligence

surpasses human intelligence, enabling it to solve complex
problems, create new technology, and make decisions beyond the
scope of human understanding

Artificial Intelligence - Types

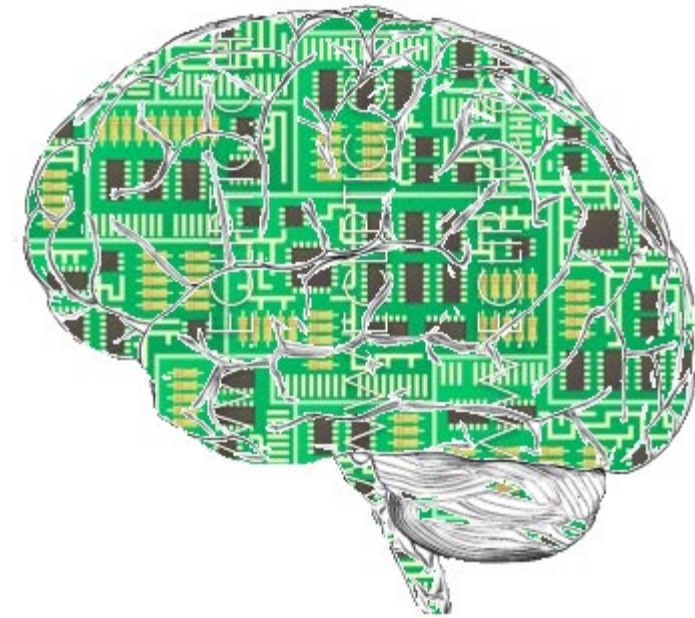
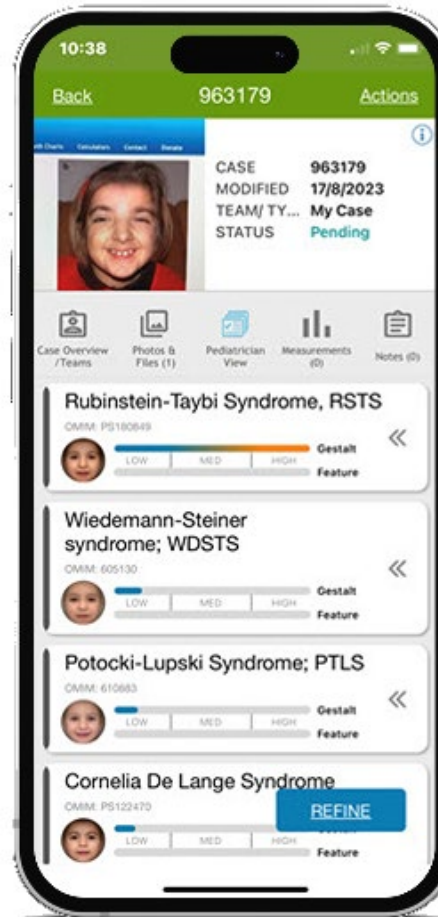
Analytic

Interpreting a CT
Predicting a patient is becoming septic
Recognise genetic syndromes
Detecting skin cancer

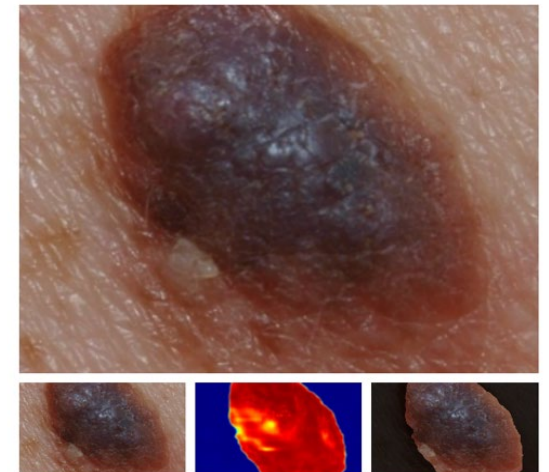
Generative

Text - ChatGPT writing a medical letter

Images -



Scanning result



Signs of malignant neoplasm of the skin were detected.

Risk: 47% Cancer

Treatment: surgical removal.

Artificial Intelligence - training

Unsupervised learning

The image displays a grid of 48 small image thumbnails, arranged in 4 rows and 12 columns. Each thumbnail features a small image of cats and dogs, often in various poses or interactions, with a text caption below it. The captions are diverse, ranging from general information about cats and dogs to specific facts and tips. For example, some captions include "Cats & Dogs (2001)...", "Are Dogs Smarter than Cats? | Br...", "How to Introduce a Dog to a Cat | Be...", "Cats vs dogs: in terms of evolutio...", "Your Dog and Cat Get Along...", "Introducing Dogs to Cats - American...", "20 Little Known Facts About Cats and Dogs", "Can cats and dogs be friends?", "Do They Get Along...", "Differences Between Dogs and Cats ...", "Which Animal is ...", "Dogs and Cats Live in the Same House...", "Cats vs dogs: Scientists finally ...", "7 tips for a good life ...", "Teach Your Dog a...", "Can dogs and cats happily co-habitat ...", "Cats & Dogs - Rotte...", "Common cat and dog skin conditions ...", "Dogs Cats and Other Animals | Wattle ...", "Your Cat and Dog to Get Along", "a Cat and Dog", "Cat-dog relationship - Wikipedia", "puppy cats and dogs", "small cats and dogs", "cute cats and dogs", "Which are smarter, cats or dogs? We ...", "Dog Cat Images - Free Do...", "Introducing and Managing Cats and Dogs ...", "Dog owners rejoice! Dogs could be ...", "Cats vs Dogs: The Ultimatum...", "Can Cats and Dogs Be Friends? | Purina", "Why cats and dogs are less susceptible ...", "Dogs and Cats Hate Each Other Myth ...", "Are Dogs Really Smarter ...", "Cat 'Becomes a Dog' by C...", "paw-trait with 17 cats and dogs ...", "Why cats and dogs are different - The...", "The Pros and Cons of Cats and Dogs | Choo...", "Scientists confirm th...", "Introduce a Dog and Cat | Veterinary ...", "Cats vs. Dogs: Which pet makes bette...", "17 Cats and Dogs to Pose...", "Why do dogs and cats not get along...", "similarities between cats and dogs", "What came first, the Cat or the Dog ...", "Best Dog Breeds for Cats", "Dog and Cat Manage...", "The loyalty of rats, cats and dogs ...", "Why Cats Make Better Pets Than Dogs", "cats and dogs 2", "beautiful cats and dogs", "cats and dogs movie characters", "Dogs and Cats - The Best Ways to ...", "Can Dogs and Cats Get Along? | Wondero...", "Cats & Dogs (2/10) Movie CLIP - Mr ...", "Introducing a Dog to a Cat Home - K&...", "Ten Fun Facts About Dogs and Cats ...", "Cats and Dogs 2: T...

Semi-supervised / reinforcement learning

Artificial Intelligence – training - medical

Rule based algorithms/Symbolic/GOFAI

Program an algorithm based on a few variables to predict sepsis

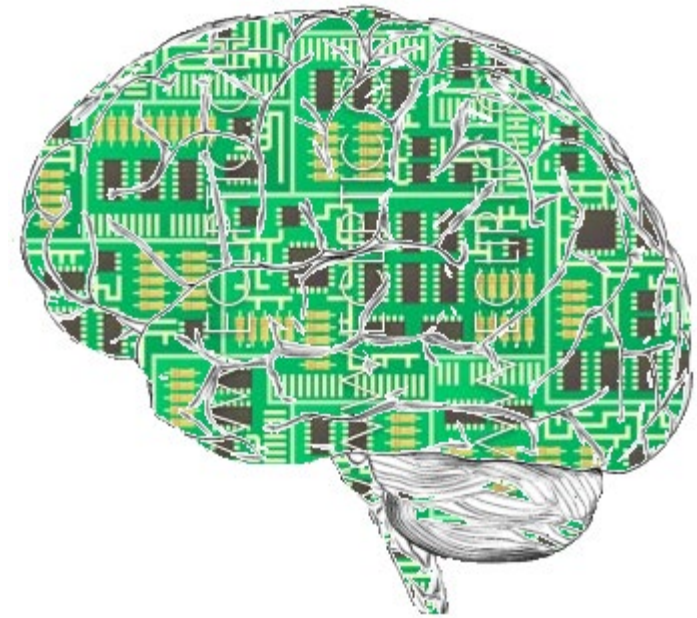
Temperature, Heart rate, blood pressure, CRP, WCC, Lactate

Supervised learning

Feed in Electronic Health Record and lab data from 100,000 patients

Label who had sepsis as a final diagnosis

AI learns to predict based on data (?? Which)



Original Investigation

FREE

June 21, 2021

External Validation of a Widely Implemented Proprietary Sepsis Prediction Model in Hospitalized Patients

Epic

with the patient at the heart

Outcomes

What you can do

OUTCOMES

Stopping Sepsis, Saving Lives

Research suggests Epic Sepsis Model is lacking in predictive power

A retrospective study in JAMA Internal Medicine finds that the model did not identify two-thirds of sepsis patients and frequently issued false alarms.



Let's Chat!

Chat **G**enerative **P**re-Trained **T**ransformer

Engage in text-based interactions simulating a conversation with a human.

ChatGPT-3 released Nov 2022: 1 million users in 5 days
100 million by Jan 2023



Subject: Classroom Management Strategies for Anne's ADHD

Dear [Teacher's Name],

I hope this letter finds you well. I wanted to take a moment to share some insights and suggestions that might be helpful in effectively managing Anne's ADHD in the classroom setting. As you know, Anne is a bright and enthusiastic student who, like many others with ADHD, may benefit from certain strategies to ensure her success and engagement in your classroom.

1. **Structured Routine:** Establish a predictable daily routine and visual schedule. This can help Anne anticipate what to expect throughout the day, which may reduce anxiety and improve her ability to transition between tasks smoothly.
2. **Clear Instructions:** When providing instructions or assignments, be concise, specific, and repeat them if necessary. Consider providing both written and verbal instructions to accommodate different learning styles and enhance Anne's understanding.
3. **Chunking Tasks:** Break down complex tasks into smaller, manageable steps. This can prevent Anne from feeling overwhelmed and make it easier for her to complete assignments or projects.
4. **Visual Aids:** Utilize visual aids such as charts, diagrams, or color-coded organizers to help Anne grasp and remember information better. These visual cues can assist her in organizing thoughts and information effectively.
5. **Frequent Breaks:** Allow Anne to take short, structured breaks during longer tasks. These breaks can help her recharge and maintain focus over extended periods.

6. **Flexible Seating:** Consider offering alternative seating options, like a standing desk or a fidget-friendly chair, which can help Anne release excess energy and stay more engaged during lessons.
7. **Positive Reinforcement:** Implement a system of positive reinforcement. Acknowledge and reward Anne's efforts and achievements, even for small accomplishments. This can boost her self-esteem and motivation.
8. **Clear Expectations:** Establish clear behavioral expectations and rules within the classroom. Discuss these expectations with Anne, ensuring she understands them and their significance.
9. **Quiet Space:** Designate a quiet corner or area where Anne can go if she needs a moment to regroup or concentrate without distractions.
10. **Use of Technology:** Integrate educational apps or digital tools that align with Anne's learning needs. Interactive technology can provide an engaging and effective way for her to learn and participate.
11. **Collaboration with Parents:** Maintain open communication with Anne's parents to share insights and updates on her progress. This collaborative approach can help ensure consistent support both at school and at home.

I truly believe that with these strategies in place, Anne's learning experience can be enriched, and she can thrive in your classroom environment. I am more than willing to discuss these suggestions further or provide additional information if needed. Thank you for

MI Suggest differential diagnoses for a child with: fever, rash, conjunctivitis, swollen lymph nodes, red lips



I'm not a healthcare provider, but if a child is experiencing symptoms such as fever, rash, conjunctivitis, swollen lymph nodes, and red lips, prompt medical evaluation is essential for accurate diagnosis and appropriate treatment. Here are some differential diagnoses that a healthcare provider may consider for these symptoms:

1. **Kawasaki Disease:** This condition is more common in children and presents with a high fever, rash, conjunctivitis, and red lips. Swollen lymph nodes, particularly in the neck, are also a common feature.
2. **Measles:** Symptoms commonly include a high fever, rash, and red, watery eyes (conjunctivitis). Measles may also cause swollen lymph nodes and is highly contagious.
3. **Scarlet Fever:** Typically begins with a high fever and sore throat, followed by a red rash. The condition can also cause swollen lymph nodes, but red lips and conjunctivitis are less common.
4. **Viral Exanthem:** Many viral infections in children can cause a rash and fever. Conjunctivitis, swollen lymph nodes, and red lips can sometimes accompany these infections.
5. **Stevens-Johnson Syndrome:** This severe reaction, often to medication or infection, can include symptoms such as high fever and a rash. Mucous membranes, including the lips and eyes, can also be affected.
6. **Hand, Foot, and Mouth Disease:** This common viral illness in children can cause fever, mouth sores, and a rash on the hands and feet. It doesn't usually cause conjunctivitis or swollen lymph nodes, however.
7. **Rubella (German Measles):** Rubella commonly causes a mild fever and a rash. Swollen lymph nodes are common, especially behind the ears. Conjunctivitis is less common.
8. **Toxic Shock Syndrome:** Although rare, this condition can present with a high fever, rash, and involvement of the mucous membranes, including red lips and possibly conjunctivitis.
9. **Allergic Reaction or Anaphylaxis:** In severe cases, an allergic reaction can cause a rash, red lips, and swollen lymph nodes. A fever is less likely but can occur in severe systemic reactions.
10. **Impetigo:** While this primarily causes a skin rash, if the infection is severe enough, it can cause swollen lymph nodes and fever. Red lips and conjunctivitis are not typical symptoms.
11. **Roseola:** This condition usually affects infants and young children, causing a high fever followed by a rash. It does not typically cause red lips, conjunctivitis, or swollen lymph nodes.
12. **Infectious Mononucleosis:** Also known as "mono," this infection is caused by the Epstein-Barr virus and can result in fever, swollen lymph nodes, and a rash. Conjunctivitis and red lips are less common.

Because these symptoms can be indicative of serious or even life-threatening conditions, immediate medical attention is crucial for an accurate diagnosis and appropriate treatment.

What is the best prophylaxis for childhood migraine?



The best prophylactic (preventive) treatment for childhood migraines can vary from child to child, and it often depends on factors such as the frequency, severity, and duration of the migraines, as well as the child's overall health and any potential underlying conditions. It's important to work closely with a pediatrician or pediatric neurologist to determine the most appropriate treatment approach for your child. That being said, here are some common options that may be considered for childhood migraine prophylaxis:

1. **Lifestyle Modifications:** Before considering medication, lifestyle adjustments might be recommended. These can include maintaining a regular sleep schedule, managing stress through relaxation techniques, staying hydrated, eating balanced meals, and identifying and avoiding trigger factors such as certain foods or environmental stimuli.
2. **Biofeedback and Relaxation Techniques:** Some children may benefit from learning techniques such as biofeedback, relaxation exercises, and mindfulness meditation to manage stress and potentially reduce the frequency and intensity of migraines.
3. **Magnesium Supplements:** Some studies suggest that magnesium supplementation may be helpful in reducing the frequency and severity of migraines in children. However, it's important to consult a healthcare professional before starting any supplements.
4. **Riboflavin (Vitamin B2) Supplements:** Vitamin B2 supplements have shown promise in certain studies as a preventive treatment for migraines in both adults and children. Again, consult with a healthcare provider before using supplements.
5. **Coenzyme Q10 Supplements:** Coenzyme Q10 is another supplement that has been studied for migraine prevention in children. As always, consult with a healthcare professional before starting any new supplement.
6. **Antiepileptic Medications:** Some antiepileptic medications, such as topiramate and valproic acid, have been used to prevent migraines in children. These medications should be carefully considered and monitored by a pediatric neurologist due to potential side effects.
7. **Beta-Blockers:** Propranolol is a beta-blocker that has been used for migraine prevention in both children and adolescents. It can be effective but should be prescribed and monitored by a healthcare professional.
8. **Tricyclic Antidepressants:** Amitriptyline, a tricyclic antidepressant, is sometimes prescribed in low doses for migraine prevention in children. Like other medications, its use should be overseen by a healthcare provider.
9. **Calcium Channel Blockers:** Flunarizine, a calcium channel blocker, has been used for migraine prophylaxis in some countries. Its use should be discussed with a pediatric neurologist.
10. **Botulinum Toxin (Botox):** In certain cases, Botox injections have been considered for children with chronic migraines that haven't responded well to other treatments. This option is typically reserved for severe cases and requires expertise in its administration.

Remember that treatment plans should be tailored to the individual child's needs, and regular communication with the healthcare provider is essential to monitor the effectiveness and potential side effects of any chosen treatment.



explain how they work



Certainly, let's delve into how some of the mentioned prophylactic treatments work in the context of childhood migraines:

- 2. **Supplementation (Magnesium, Riboflavin, Coenzyme Q10):** Magnesium is a mineral that plays a role in nerve function and regulation of blood vessels. It's hypothesized that magnesium supplementation may modulate neurotransmitter activity and improve blood flow, thus mitigating the mechanisms involved in migraine development. Riboflavin (Vitamin B2) and coenzyme Q10 are antioxidants that might influence mitochondrial function and decrease oxidative stress, potentially reducing the susceptibility to migraines.
- 3. **Antiepileptic Pharmacotherapy (Topiramate, Valproic Acid):** Antiepileptic medications like topiramate and valproic acid are thought to exert their prophylactic effect through modulation of neurotransmitter systems and ion channels. By affecting neuronal excitability and altering neurotransmitter balance, these medications aim to reduce the hyperexcitability of neurons that can lead to migraine initiation.
- 4. **Beta-Blockers (Propranolol):** Beta-blockers work by blocking the effects of certain stress-related hormones, particularly adrenaline and noradrenaline. By doing so, they can help control blood pressure, heart rate, and stress responses. In the context of migraines, beta-blockers like propranolol are believed to influence blood vessel dilation and neurotransmitter imbalances associated with migraines.
- 5. **Tricyclic Antidepressants (Amitriptyline):** Tricyclic antidepressants affect neurotransmitter levels in the brain, particularly serotonin and norepinephrine. These medications can alter pain perception and help regulate mood. Amitriptyline, in lower doses than used for





explain how they work



Certainly, let's delve into how some of the mentioned prophylactic treatments work in the

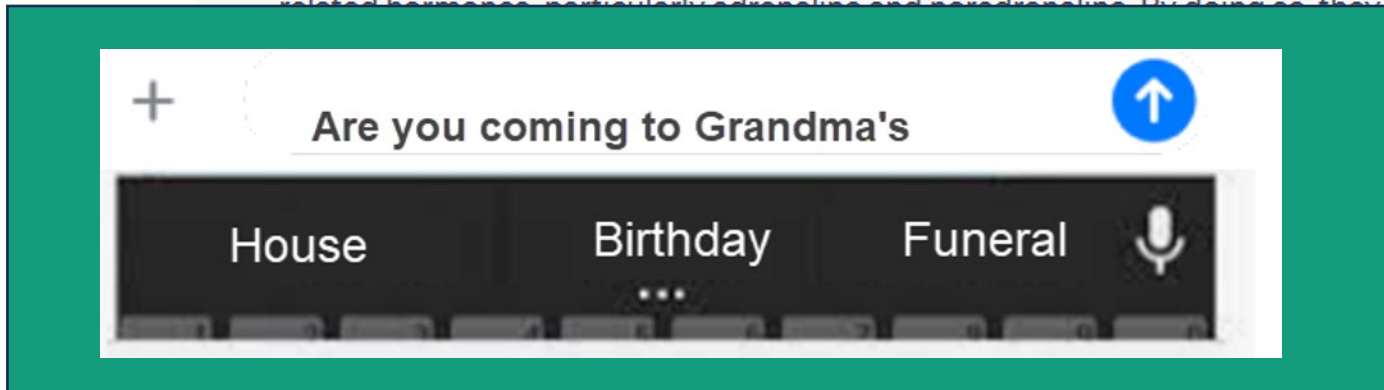
“Wow!. So, it's like Google on steroids - pulls out information from all the sources, collates and summarises them for you.”



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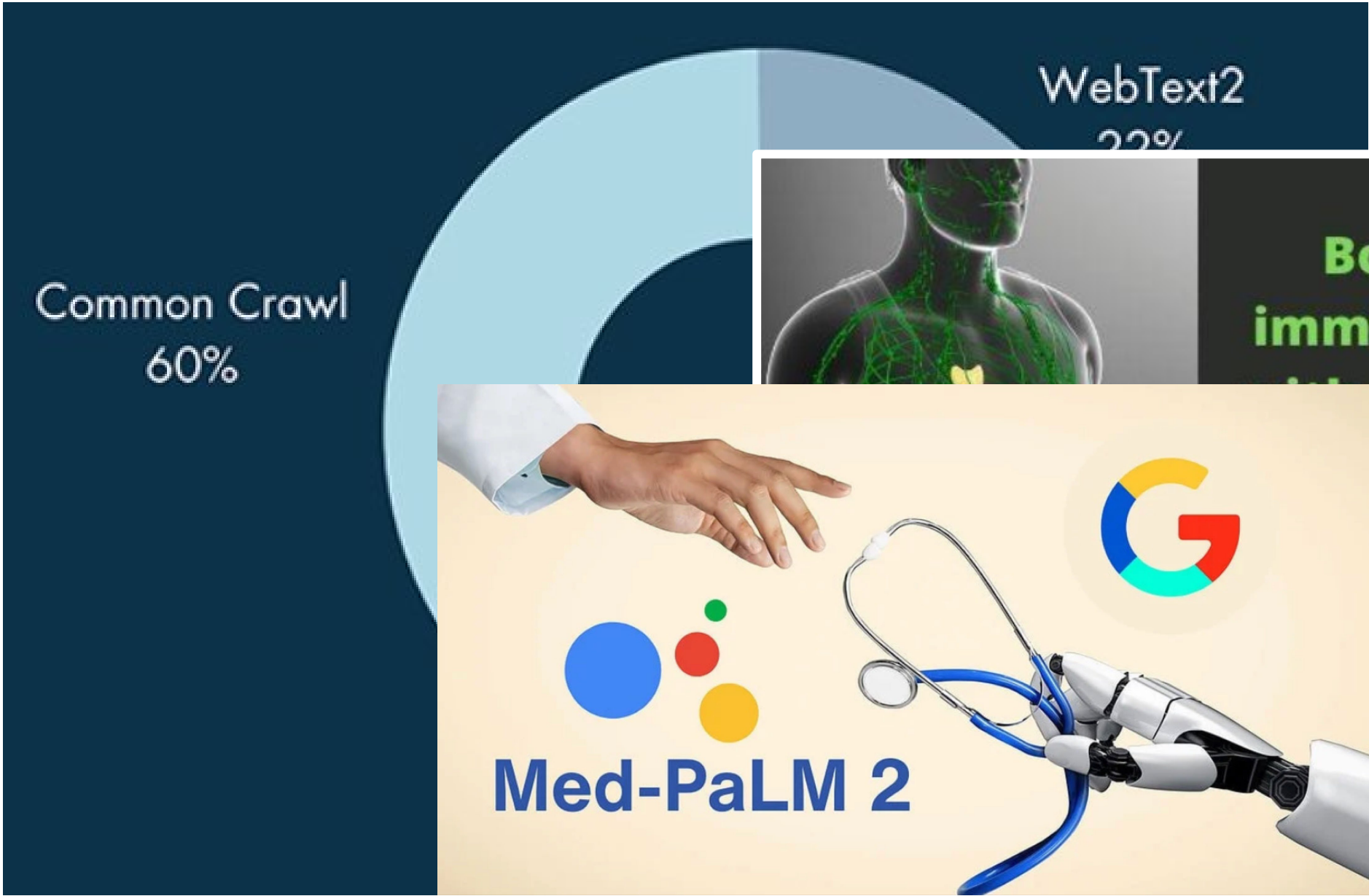


...otransmitter

...s can alter

...d for

The sources!





What is the best prophylaxis for childhood migraine?



can you provide references



Sure! Below are some references that provide information on the management and prophylaxis of migraines in children:

1. Abu-Arafeh, I., & Razak, S. (2006). Prophylactic drugs for migraine in children: A systematic review. *Pediatric Neurology*, 34(2), 119-126. doi: 10.1016/j.pediatrneurol.2005.06.008
2. Lewis, D. W., & Winner, P. (2005). Migraine in children and adolescents: Diagnosis and treatment. *Neurology*, 65(12 Suppl 4), S4-S12. doi: 10.1212/01.wnl.0000186616.59305.60
3. Powers, S. W., Coffey, C. S., Chamberlin, L. A., Ecklund, D. J., Klingner, E. A., Yankey, J. W., . . . Hershey, A. D. (2017). Trial of amitriptyline, topiramate, and placebo for pediatric migraine. *New England Journal of Medicine*, 376(2), 115-124. doi: 10.1056/NEJMoa1610384
4. Silberstein, S. D., Holland, S., Freitag, F., Dodick, D. W., Argoff, C., Ashman, E., . . . Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. (2012). Evidence-based guideline update: Pharmacologic treatment for episodic migraine prevention in adults: Report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. *Neurology*, 78(17), 1337-1345. doi: 10.1212/WNL.0b013e3182535d20



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2. Lewis, D. W., & Winner, P. (2005). Migraine in children and adolescents: Diagnosis and treatment. *Neurology*, 65(12 Suppl 4), S4-S12. doi: 10.1212/01.wnl.0000186616.59305.60

3. Powers, S. W., Coffey, C. S., Chamberlin, L. A., Ecklund, D. J., Klingner, E. A., Yankey, J. W., . . . Hershey, A. D. (2017). Trial of amitriptyline, topiramate, and placebo for pediatric migraine. *New England Journal of Medicine*, 376(2), 115-124. doi: 10.1056/NEJMoa1610384

4. Silberstein, S. D., Holland, S., Freitag, F., Dodick, D. W., Argoff, C., Ashman, E., . . . Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. (2012). Evidence-based guideline update: Pharmacologic treatment for episodic migraine prevention in adults: Report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. *Neurology*, 78(17), 1337-1345. doi: 10.1212/WNL.0b013e3182535d20



Are you coming to Grandma's



House

Birthday

Funeral



What is the best prophylaxis for childhood migraine?

There is no definitive answer to what is the best prophylaxis for childhood migraine, as different medications may have different effects and side effects depending on the individual child. However, some of the medications that have been used for migraine prophylaxis in children are:

- **Propranolol hydrochloride**, a beta-blocker that can reduce the frequency and severity of migraine attacks ¹ ².
- **Topiramate**, an anticonvulsant that can also prevent migraine headaches ¹ ³. This is an unlicensed use and should be prescribed by a specialist.
- **Pizotifen**, an antihistamine that can prevent migraine by blocking serotonin receptors ³. This medication had the highest positive response rate in a study of paediatric migraine prophylaxis ³.
- **Amitriptyline**, a tricyclic antidepressant that can also prevent migraine by affecting serotonin and norepinephrine levels ³.
- **Gabapentin**, another anticonvulsant that can also prevent migraine by affecting calcium channels ³.

These medications should be used with caution and under medical supervision, as they may have side effects such as drowsiness, weight gain, mood changes, cognitive impairment, etc. They should also be used in conjunction with non-pharmacological measures such as avoiding triggers, maintaining a regular sleep schedule, staying hydrated, exercising regularly, and managing stress.

I hope this information helps you. If you have any questions or concerns, please consult your doctor or pharmacist. 😊

Learn more: [1. bnfc.nice.org.uk](#) [2. healthline.com](#) [3. adc.bmj.com](#) [4. racgp.org.au](#)

3 of 30 ●

[5. rch.org.au](#) [6. rch.org.au](#) [– see less](#)

Generative AI

& Epic

Generate suggested text

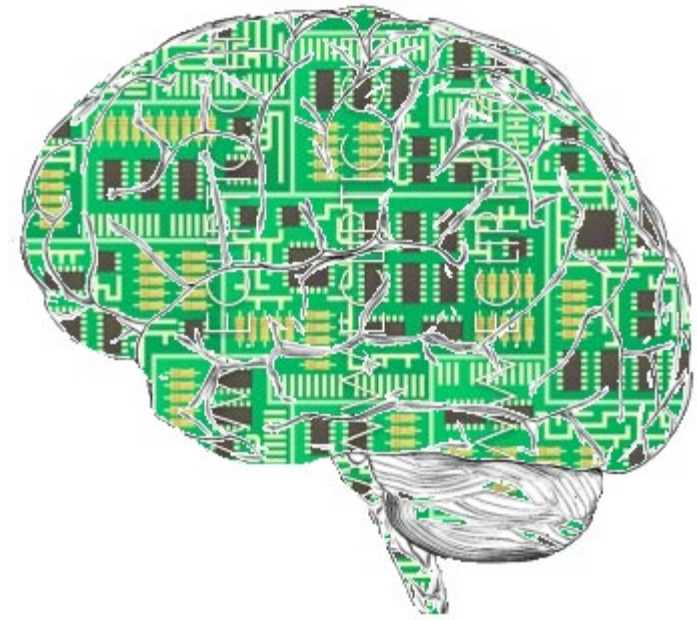
Automate routine tasks

Auto-summarize

Translate

The Epic logo is displayed in a white rectangular box in the bottom right corner. The word "Epic" is written in a bold, red, italicized sans-serif font.

Ambient Clinical Intelligence



Reactions to AI

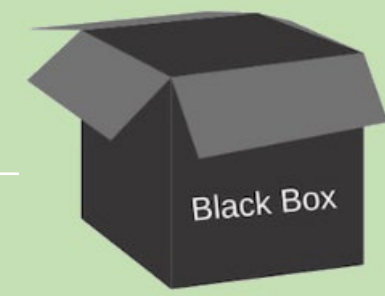
**A panacea for
every problem**






**Doomsday predictions.
The end of humanity!**


Principles	Some potential problems
Beneficence	Likely transformative potential: in quality, experience, access, efficiency, cost.
Nonmaleficence	Risks of harm to: <ul style="list-style-type: none"> • Patients • Clinicians • Society • The environment Hacking risk
Autonomy	Patients: Transparency, informed consent Clinicians: <ul style="list-style-type: none"> • understanding (black box effect), • over-reliance, • accountability, indemnity, • job-displacement.
Justice	Inequity of access (widening disparities) Bias from training data (unrepresentative, stereotyping)
Confidentiality	Risks of privacy breaches – direct and through addition to training data sets
Regulation	What? How? Who? Hospitals/Governments (eg via TGA) /Insurers/AMA/International Pace of development.

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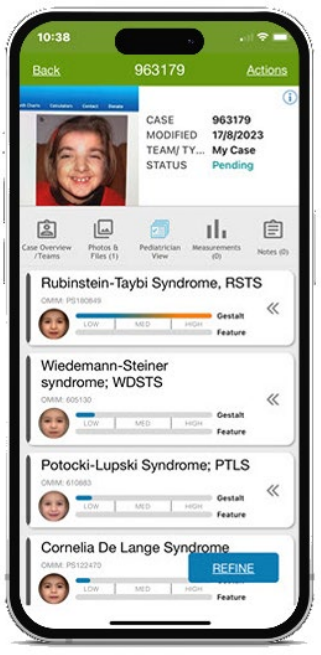
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Beneficence	Likely transformative potential: in quality, experience, access, efficiency, cost.
Nonmaleficence	Risks of harm to: <ul style="list-style-type: none"> • Patients • Clinicians • Society • The environment Hacking risk
Autonomy	Patients: Transparency, informed consent Clinic Dissecting racial bias in an algorithm used to manage the health of populations <small>ZIAD OBERMEYER , BRIAN POWERS, CHRISTINE VOGELI, AND SENDHIL MULLAINATHAN  Authors Info & Affiliations</small>
Justice	Inequity of access (widening disparities) Bias from training data (unrepresentative, stereotyping)
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Justice	Inequity of access (widening disparities) Bias from training data (unrepresentative, stereotyping)
Confidentiality	Risks of privacy breaches – direct and through addition to training data sets
Regulation	What? How? Who? Hospitals/Governments (eg via TGA) /Insurers/AMA/International Pace of development.

Principles	Some potential problems
Beneficence	Likely transformative potential: in quality, experience, access, efficiency, cost.
Nonmaleficence	<p>Risks of harm to:</p> <ul style="list-style-type: none"> • Patients • Clinicians • Society • The environment <p>Hacking risk</p>
Autonomy	<p>Patients: Transparency, informed consent</p> <p>Clinicians:</p> <ul style="list-style-type: none"> • understanding (black box effect), • over-reliance, • accountability, indemnity, • job-displacement.
Justice	<p>Inequity of access (widening disparities)</p> <p>Bias from training data (unrepresentative, stereotyping)</p>
Confidentiality	Risks of privacy breaches – direct and through addition to training data sets
Regulation	<p>What? How? Who?</p> <p>Hospitals/Governments (eg via TGA) /Insurers/AMA/International</p> <p>Pace of development.</p>

Principles	Some potential problems
Beneficence	Likely transformative potential: in quality, experience, access, efficiency
Nonmaleficence	<p>Risks of harm to:</p> <ul style="list-style-type: none"> • Patients • Clinicians • Society • The environment <p>Hacking risk</p>
Autonomy	<p>Patients: Transparency, informed consent</p> <p>Clinicians:</p> <ul style="list-style-type: none"> • understanding (black box effect), • over-reliance, • accountability, indemnity, • job-displacement.
Justice	<p>Inequity of access (widening disparities)</p> <p>Bias from training data (unrepresentative, stereotypical)</p>
Confidentiality	Risks of privacy breaches – direct and through additional parties
Regulation	<p>What? How? Who?</p> <p>Hospitals/Governments (eg via TGA) /Insurers/AMA/</p> <p>Pace of development.</p>



Principles	Some potential problems
Beneficence	Likely transformative potential: in quality, experier
Nonmaleficence	Risks of harm to: <ul style="list-style-type: none"> • Patients • Clinicians • Society • The environment – Power/Water Hacking risk
Autonomy	Patients: Transparency, informed consent Clinicians: <ul style="list-style-type: none"> • understanding (black box effect), • over-reliance, • accountability, indemnity, • job-displacement.
Justice	Inequity of access (widening disparities) Bias from training data (unrepresentative, stereotyping)
Confidentiality	Risks of privacy breaches – direct and through addition to tr
Regulation	What? How? Who? Hospitals/Governments (eg via TGA) /Insurers/AMA/Interna Pace of development.



Google uses AI to cut data centre energy use by 15%

How AI is accelerating our search for climate change solutions

Principles	Some potential problems
Beneficence	Likely transformative potential: in quality, experience, access, efficiency, cost.
Nonmaleficence	Risks of harm to: <ul style="list-style-type: none"> • Patients • Clinicians • Society • The environment
Autonomy	<div style="border: 2px solid blue; padding: 10px; margin: 10px 0;"> <p>Advisory - Clinical use of Generative AI</p> <p>Unregulated generative AI software such as ChatGPT and other, similar, software should not be used for any clinical purpose</p> </div>
	<p>Clinicians:</p> <ul style="list-style-type: none"> • understanding (black box effect), • over-reliance, • accountability, indemnity, • job-displacement.
Justice	<p>Inequity of access (widening disparities)</p> <p>Bias from training data (unrepresentative, stereotyping)</p>
Confidentiality	Risks of privacy breaches – direct and through addition to training data sets
Regulation	<p>What? How? Who?</p> <p>Hospitals/Governments (eg via TGA) /Insurers/AMA/International</p> <p>Pace of development.</p>

Principles	Some potential problems
Beneficence	Likely transformative potential: in quality, experience, access, efficiency, cost.
Nonmaleficence	Risks of harm to: <ul style="list-style-type: none"> • Patients • Clinicians • Society • The environment <p style="text-align: right;">– Dehumanising / Empathy</p> <p>Hacking risk</p>
Autonomy	Patients: Transparency, informed consent Clinicians: <ul style="list-style-type: none"> • understanding (black box effect), • over-reliance, • accountability, indemnity, • job-displacement.
Justice	Inequity of access (widening disparities) Bias from training data (unrepresentative, stereotyping)
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The Doctor 1891 Luke Fildes

Ethical challenges in the use of AI in **healthcare** and **academia**

Julian Koplin

Lecturer at the Monash Bioethics Centre

