Under the Microscope

Newsletter reporter: Research Nurse Claire Glemas
Design, illustration: Jen Rose (Creative Patient Ltd)
Guest editor: Connie Tayler-Hicks, age 16

Paediatric Gastroenterology Research Team newsletter

Addenbrooke's Hospital, Cambridge University Hospitals NHS Trust

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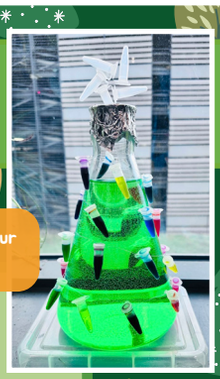


What do you think of our lab Christmas tree..?!

HELLO!

Welcome to issue 9 of our newsletter!

Sometimes we add a little craziness to lab meetings - it's not all serious science! This Halloween we had a spooky themed meeting!

In July, we held our annual Young Science Day. You can find out all about the day later on in this issue.

At the end of October we held our investigators' meeting at the beautiful Homerton College. This is always such a good opportunity for the scientists to get together to share their ideas, talk about what they've have learned, and plan what to do next!

We've welcomed new team members Fariba, our research assistant, and Anna, our data manager. Unfortunately, we also said goodbye to Francesca, (this is her leaving party!) who has taken on a new role at the Sanger Institute. However, we're super happy to congratulate Francesca and Guido on their recent wedding - wishing them all the best!

Congratulations to Emily (a clinical research coordinator and genetic counsellor!) for running the Amsterdam marathon in an incredible time of 3 hours and 32 minutes - wow! Emily and her colleague Heather have been helping us to recruit to the NIHR paediatric bioresource study, but they are moving on now, so we wanted to say a big thank you and good luck!

And finally, we're excited to announce that our fab pharmacist Emma and her husband Jeff welcomed beautiful baby Flora into the world at the end of October!

Young Sparks!

Have you ever made snow?

We can't be sure if we'll see real snow this winter, so why not make your own version with this simple, two ingredient mixture – it feels cool to the touch too!

You need: Bicarbonate of soda (500g) and shaving foam (1 tin) – that's it!

Method:

1. Tip the bicarbonate of soda into a plastic container (with a lid)
2. Squirt in some shaving foam and knead it into the bicarb powder
3. Keep adding foam and kneading it in until the mixture is the consistency
4. Let your imagination run wild – what can you build with your 'snow'?
5. When you're finished, pop the lids on to store your 'snow' for next time!

Your 'snow' will smell of the shaving foam you use – what smell will you choose?!

Cheesy science joke!

Why are chemists good at solving problems?

Because they have all the solutions!

Meet our team...

Scan here to see all our newsletters!

CAMILLA

'I always change my hair style and I wear funky scrubs'

'I always talk about food!'

'I'm VERY loud and I hug people a lot!'

Hi, I'm Camilla, one of the consultants in the team. I have been working here for the past 14 years looking after children with nutritional problems.

I help with research as much as I can but I do not sit in the lab, I am out there meeting children and their families, promoting research as much as possible.

I love helping others, making children smile, reading books, watching movies and series, cooking and being with my friends.

My perfect day would be: skiing in the morning and chilling out in the afternoon with a good book or movie under a blanket. If you add in a nice dinner and lots of cakes...that's heaven!!!

ARETI

Areti works at the children's research facility in Addenbrookes. It's just like a hospital ward, but the patients here are all on a research study. They could be using a new piece of medical equipment, or looking at how a new drug works

'When no one's watching, I like to sing at the top of my voice with my niece. We are basically (undiscovered) pop stars!'

'When I was younger, I used to imagine everyone I met as an animal - I might still do this sometimes... My brother was always a parrot because he never stopped talking!'

'I'm obsessed with indoor plants - I have 29 of them, and quite a few are already taller than me!'

Hi, I'm Areti! I am a research nurse and for the past three years I have been the Team Leader of the Maternal and Child Health Clinical Research Facility in Cambridge. Quite a fancy name, isnt it? Actually, it's a really interesting place to work. Here, we run research studies to understand how diseases work. Often, we use a little butterfly needle to take blood samples which we then send off to the labs for analysis. We also test new and existing medicines to help treat common and rare conditions. We always make sure that everyone who visits the research unit leaves with something fun, like colourful stickers or cool plasters (no boring ones are allowed!).

I love my job because I get to work with amazing people, and together, we're helping children, pregnant women, and young people feel better.

In my spare time I love travelling and spending time with my friends. The best part is when I can do both, like this summer, when I went sailing in Greece with my friends, pretending to be "The Pirates of the Mediterranean."

Riddle answers:

1. A keyboard
2. An anchor
3. The dictionary
4. He was bald
5. A queen bee
6. Lunch and dinner

Our research...

(...and interesting research other teams are doing!)

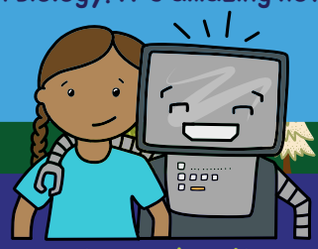
Understanding AI...

Protein structures from an AlphaFold!

by Xingze (William) Xu and Seokjun (June) Lee

AI in science

Did you know that this year, the Nobel Prizes in both Physics and Chemistry were awarded to research that used artificial intelligence (AI)? AI has helped scientists make huge discoveries, and this recognition shows just how powerful AI can be. In Chemistry, scientists used AI to predict how proteins fold into their 3D structures (AlphaFold), which is extremely important for understanding human biology. It's amazing how AI is changing the way we think about science, allowing us to solve problems that once seemed impossible. Pretty cool, right?



What is AI?

So, what exactly is AI? Imagine you had a really, really smart friend. This friend is not a person but a computer program that can be trained! When you're training a pet, you show it what to do over and over, and eventually, it learns! AI is similar: scientists teach it by showing it lots of information, and it learns to find patterns or make predictions.

And like when you play a game, and the game gets harder because it's learning how you play and adapting to keep challenging you, AI keeps getting smarter the more it learns, and that's why it's so helpful for scientists.

(Can you remember we talked about gene 'books' and DNA methylation in issue 7)

Using AI to understand IBD

Our computational research team uses AI to help us understand Inflammatory Bowel Disease (IBD) better. We want to find out why some people get IBD while others don't, and how we can treat it more effectively.

One of the ways we do this is by examining DNA methylation profiles – tiny chemical tags on DNA that can change how genes work without altering the genetic code. These tags can turn certain genes on or off, which can play a big part in whether someone develops a disease like IBD. Given the vast number of cells and the massive amounts of data involved, figuring out the differences between healthy and diseased cells is like searching for a needle in a haystack. That's where AI comes in! It can sift through all this data much faster than a human ever could, helping us identify what might be causing problems.

AI as a tool for discovery and treatment

AI helps us by analysing thousands of DNA samples and finding small but possibly important changes. These changes are like little clues that help us understand what's happening in the body when someone has IBD. Like a super detective who never gets tired and always knows the right questions to ask, AI can spot patterns that are too small or too complex for humans to notice on their own. By understanding these patterns, we can learn more about the causes of IBD and look for ways to stop it.

With AI, we're hoping we can discover new treatments that work better and perhaps even stop people getting IBD in the future. We also aim to make treatments more personalised (so each person gets the best treatment for them).

So AI is helping us get closer to a world where we can predict and prevent diseases before they even start!

Young scientist day




Our Young Scientist Day in July was so much fun!

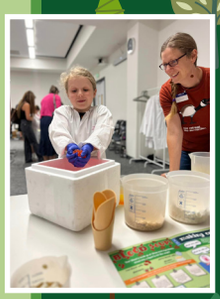
We kicked things off with a fun-filled 'Get to Know You' bingo, where scientists, young people and their families mingled and made new friends.

Once the lab coats were on, the real science adventure began!

Our young scientists were creating their own 'blood soup,' sculpting different types of human cells out of playdough, and testing detective skills with a 'Guess the Criminal' DNA quiz. We ran two lab tours, where everyone got an up-close look at the high-tech equipment our team uses, and even helped reunite our lab mascots, Larry and Loretta (check out the photos!).

After a picnic lunch, parents had the chance to chat with our volunteers and the medical and research team, while the young scientists finished off their morning experiments. It was a day full of hands-on fun!





Can you spot anyone you know in the photos??



Cambridge Children's Hospital

(by Dr Rob who is Clinical Director for the Cambridge Children's Hospital Project)

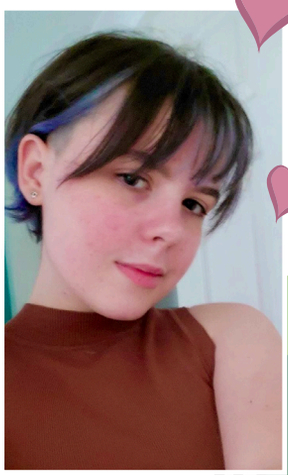
The East of England is the only region in the country without a dedicated children's hospital.

We've been working hard to change this and the Cambridge Children's Hospital project continues to make amazing progress – it has been very long time coming, with efforts starting over 25 years ago. The project has been signed off by the new government which means we can start work in 2026, and the hospital should be open in 2029.

The mission of the hospital is to care for children with mental and physical health needs in a safe space designed to provide high quality care for children from across our region. The new building will allow our incredible staff to deliver patient and family-centred care across all specialities. The hospital will also have research space focused on conditions affecting children and young people and a large hospital school.

Connie's story

Connie, our guest editior, shares her story, and the story that helped her the most.



When I was 11, I found out I had Crohn's disease. It was tough - I felt different from my friends and family, and I didn"t know anyone else who had it. I began to feel like I might be the only person in the whole world going through it and I felt lonely and scared. I tried doing things I used to love, like acting and dancing, but they didn"t make me happy like they used to.

But this isn't a sad story. It's about how I found something that made me feel better: writing.

One day I read a book called The Lord of the Rings, and it completely drew me in. There was a character named Frodo who had to carry a really heavy burden, something he didn't want but couldn't leave behind. I felt a bit like Frodo because I had my own challenge to carry. But in the story, Frodo wasn't alone - he had his best friend, Sam, who helped him, protected him, and even carried him when he was too tired to walk.

I realised that if my illness is like the burden Frodo had to carry, then writing is like my Sam. When I felt lonely or sad, writing was there, like a friend who listened. I could create stories, feel understood, and even cheer myself up. The characters I read about and created were like friends, too, and they helped me feel like I wasn"t so alone.

The author, J.R.R. Tolkien, once said that it's not big, powerful people who make the world better, but ordinary people who do little kind things every day. For me, writing is that small thing. The words make me feel safe and warm, like a hug.

So even though having Crohn's made things harder, it also helped me find something special. Writing is like my doorway to a world where I feel strong, happy, and understood. And that makes all the difference.

Connie x

We want children, young people and families to continue being involved in the research and clinical services in this hospital, the first of its kind in the world. Although it will be several years before we have patients there is still lots to do before the doors open. Clinical teams, co-production champions, our growing childrens regional network, and fundraisers are all working together to make this happen.

You can visit the website to see how you can help Cambridge Children's Hospital (cambridgechildrens.org.uk) You can also see where the new hospital will be built, as some fantastic hoardings have just gone up just opposite The Rosie Hospital!

This is what the Children's Hospital will look like!

Over to you...

A space to share your news, talents and things to celebrate!

Meet George, one of our littlest ones!

'Hi, I'm George and I am 2 and a half years old. I live with my mummy, daddy, sister Daisy and my two cats, Peanut & Rupert. I currently love dinosaurs and can name different types - my favourite is of course, the T-Rex!

I first had symptoms of IBD when I was just 18 months old. Back in November 2023 I was diagnosed with IBDU, and almost a year later, after trying different medicine, I am starting to feel better. So much so that I have been doing amazingly at potty training and am really proud of myself. I also go to pre-school now and enjoy the mud kitchen as well as making new friends!'

Meet Gabriella, another of our amazing artists!

My name is Gabriella. I am 9 and a half and was diagnosed with IBD when I was 6. I love writing stories and drawing. This is a picture of a wolf that I drew at the weekend - I thought you might like to see it?! I have just entered the 500 words challenge and my book is called 'The forbidden love of a wolf'! Fingers crossed I get short listed - I will let you know if I do!

Meet Phoebe, multi talented actress and dancer!

Hi, my name is Phoebe, I am 13 years old and I was diagnosed with Crohn's in September 2024. I also have ASD and anxiety. Coming to the hospital has been really tough due to my anxiety. The support the doctors and nurses have given me, along with Jen's IBD journal, has helped me so much to understand my condition and prepare me for any treatment and medication.

I love to dance, sing and act and I attend the most amazing theatre school. I take part in lots of shows and I've even danced at Wembley stadium, Disneyland Paris and the Novello theatre. I was a little worried that Crohn's might stop me from doing what I love.

At the beginning of November I got to perform in School Of Rock at the Cresset theatre in Peterborough. It was amazing!

Even though things have been tough, all the support from my family, dance teachers and medical staff has helped me stay positive.

Meet Martha, who tells us about her amazing sporting career so far!

I'm Martha. I was diagnosed with Ulcerative Colitis in March 2024 when I was admitted to hospital. It was scary as I've never been ill or been in hospital before!

I'm 14 years old, I'm in Year 10 and I play U16's rugby. I started to play for a local team 2 years ago. It's really fun and although I didn't know anyone at the start, I've made lots of good friends.

This summer, I got the chance to be assessed to play at county level and was excited when they told me I'd been selected to play for Hertfordshire girls U16s squad, especially as I'm not quite back to full fitness. It's a big commitment as I also train and play for Fullerians (my local team), so I have to manage the tiredness, but I really enjoy it and I'm so pleased I can still play after being very ill.

I would encourage anyone at any age to try rugby- don't get put off the fact its full contact! It's hard work but fun and you get to keep fit, learn lots, make friends away from school and meet new people!

Meet Arthur, another little artist!

This is Arthur's painting of a pumpkin which he completed at Pre-School! Arthur is 2 years and 8 months old and is a non-identical twin! He loves art and crafts, so much so he has made several creations on our walls...

Meet Emma, our final artist!

Emma is 10 years old and has Crohn's disease. She has drawn a very wintery kitty, which is something that always makes her smile.

Meet birthday boy Levi!

This is Levi. He was diagnosed just this year but has coped tremendously well.

October is Levi's favourite month because he gets to celebrate his birthday and Halloween! He loves everything spooky and scary!

He celebrated his 4th birthday with a small party at home, a Zurg cake and party games. Then he went out trick or treating!

Time to play!

calling all young journalists!

Would you like to write, or draw, or share something for our newsletter? Or do you have ideas about what we could add? We'd love to hear from you.

We'd also love to know what you enjoy about our newsletter, and what could be better (You can ask us to stop sending you our newsletters here too).

To get in touch, scan this QR code or email: claire.glemas@nhs.net

1. I have keys but I don't open locks. I have space but no room. You can enter, but you can't go inside. What am I?

.....

2. When you need me, you throw me away and when you are finished with me, you bring me back. What am I?

.....

Riddle challenge!

Connie has collected some riddles for you to solve! You could ask a friend or grown up for help if they are tricky!

When you've made your guesses, you can check them by looking at the bottom of page 2!

3. Whats the only place in the world where today comes before yesterday?

.....

4. An old man went for a walk, and it started raining. He forgot to bring an umbrella and didn't have a hat. When he got home, his clothes were soaked, but not a hair on his head was wet. How was this possible?

.....

5. I have no sword, I have no spear, but I rule a colony which many fear. My soldiers fight with a wicked sting, I rule them all, yet I am no king. What am I?

.....

6. What two things can you never eat for breakfast?

..... and .....

Our guest editor...

Hi! My name is Connie, I was diagnosed with Crohn's disease when I was 11 (already 5 years ago!!) I am currently on azathioprine and adalimumab injections

Since I was diagnosed and put on the right medication, I find myself enjoying life to the fullest! For example, I love all things 'Lord of the rings' and spend alot of time playing video games, particularly 'BG3'. Sometimes at the weekends I play D&D (Dungeons and Dragons!) with my friends (I play a teifling rogue, if any other D&D nerd was wondering!)

Sometimes I do get tired and achey, but I use this time to write (I find it relaxing) - usually I do my politics homework! You can read more about this in my story on page 5.

Would you like to be our guest editor and help create a future newsletter? Let us know - claire.glemas@nhs.net