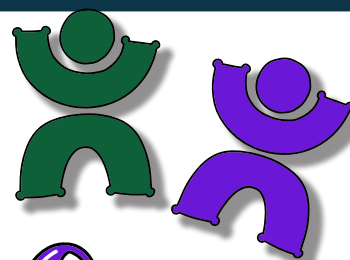
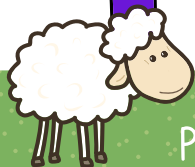


Under the Microscope



Paediatric Gastroenterology Research Team newsletter
Addenbrooke's Hospital, Cambridge University Hospitals NHS Trust

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Hudson, age 11

Issue 7

April 2024

HELLO!

Welcome to issue 7, it's lovely to see signs of spring in the air!

Have you noticed the catkins on the willow trees? There is evidence from 4000 years ago that willow bark was used as medicine, and the active agent within willow bark (called salicin) later formed the basis of the discovery of aspirin.



Once again we held our yearly strategy meeting. This is our opportunity to bring the whole team together and make sure our research work is achieving the right goals. This year it was in the Pitt building in Cambridge, built in honour of William Pitt the Younger, an undergraduate of Pembroke College and Prime Minister twice, between 1783 and 1806!



Congratulations to Dr Zilbauer and his team for winning the annual team Christmas quiz!

We've welcomed two new lab members to our team. Hyan and Jaesub will be working with us, using their skills with computer programs to help analyse our research data.

We are also busy planning our family day and we hope to see lots of you there.



Young Sparks!

Have you ever made **Oobleck**? It gets its name from a Dr Seuss book, and it is an excellent example of a mixture!

Typically, liquids take on the shape of the container they are poured into. We call these 'normal liquids' Newtonian fluids. But some fluids don't follow this rule. We call these 'strange liquids' non-Newtonian fluids.

You need: 75g cornflour and 50-60ml cold water

- Method:**
1. Tip the cornflour into a bowl and slowly stir in the water
 2. The oobleck is ready when the mixture is thick and fluid, but starts to tear if stirred fast
 3. The oobleck can dry out as you play with it. If this happens, simply add a few drops of water to loosen it.
 4. If your oobleck doesn't turn solid, stir in 1/2 tsp cornflour at a time until you get the consistency you want.

Our editor's joke!!

Why is it bad to trust atoms?

Because they make everything up!

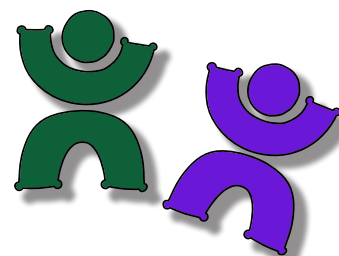


We'd love to hear what you thought? Is oobleck a liquid or a solid?

claire.glemas@nhs.net

(You could look online to try to find some more 'non-Newtonian' fluids - some of them will be very familiar!)

Meet our team...



KIM



Kia ora!

I am Kimberley, one of the paediatric gastroenterology consultants. Kia ora is a Maori greeting in the native language of New Zealand called Te Reo. I lived in New Zealand for 10 years and married a kiwi. I still love to use Te Reo even now we live in England.

I look after children and young people with IBD, intestinal failure or liver problems. Although my job involves talking about poo a lot I really do love what I do. My favorite part is getting to know the young people under our care and their families. I enjoy hearing about all the things you are getting up to and enjoy celebrating your achievements along the way.

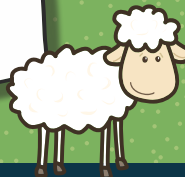
When I am not at work I am usually spending time with my husband and children. We love travelling, spending time on the beach, swimming and eating lots of ice cream. I have always played musical instruments in orchestras and this year I decided to take up the cello, maybe not so fun for everyone else in the house!

Since moving to Cambridge I have also taken up stand up paddle boarding which is the best way to relax. Of course I have fallen in a few times and even lost my paddle once! I love adrenaline sports and have jumped out of planes at 15000 feet, jumped off cliffs for paragliding and canyoning.

"If you see me in clinic, ask me and I can teach you a few words of Teo Reo"



"I am not sure what my next challenge is going to be, so give me some ideas if you see me!"



JEN

Hi I'm Jen and I'm one of the PIBD team patient volunteers - you might have met me in clinic 6. I love being part of the team, but most importantly I LOVE meeting you and your families! So why do I do what I do...

When I was 10 years old I was diagnosed with ulcerative colitis. Living with IBD was really difficult - I felt very embarrassed and ashamed and didn't tell anyone I had IBD. But covering up my symptoms, especially at school, was hard. In fact it was so hard that it had a big effect on my mental health - I was worried all the time, and had very little confidence. I didn't know anyone else who had IBD, so it felt very lonely. As I grew up and became an adult, I still struggled with how I felt, and ignored my IBD as much as I could (except when flare ups got too bad).

Then one day one of my children started to get poorly and was diagnosed with Crohn's disease. This is when I realised I had to get on board with my IBD so that I could support him with his.

Once my son was feeling better, I started looking for ways to help other young people and families who were finding it hard living with IBD. With the help of the amazing Addenbrooke's PIBD team I created 'Me (and IBD)' which is a colouring journal for young people who have IBD - have you seen a copy? I also help the team by creating this newsletter and being part of the lab days and family days.

Then the PIBD team created a new volunteer role in clinic, which I started in September last year, along with Seb - you might have met him too! We're working hard to build a lovely little community so that none of our young patients and families feel unsupported or alone.

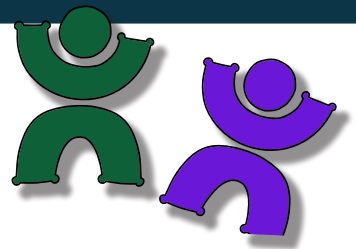
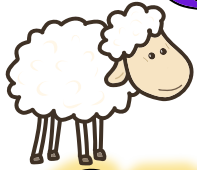
I used to think that nothing good could come from having IBD. Now I know that doesn't have to be the case!



"If you want to know more about what we're doing, find me in clinic 6 on a Thursday!"



Our research...



GENES & DNA METHYLATION

What are genes?

Our bodies are made up of lots of tiny building blocks called CELLS. Inside every cell is the information our bodies need to grow each part of us! This information is in our GENES.

Genes are all kept together in a special part of each cell. It's like a big library full of gene 'books'! Every cell contains the same complete set of gene 'books', so they know what to do and how to grow. And there are loads of gene 'books' in the set - more than 20,000!



Did you know?

We are all a mix of our parent's genes! Almost all our cells actually have 2 copies of each gene 'book' in their libraries, one from our mum and one from our dad. So if something is wrong with one of your gene 'books', there's always a backup copy for your cell to read!

Now, obviously we're not just big blobs of cells that look all the same - our hair is different from our brain or skin. I'm sure you agree! So how is that possible if all our cells have the same gene library?

Different cells like to read different gene 'books' - that's how they learn what they need to become a special type of cell. Think about it - brain cells are like little detectives, reading books on how to solve tricky problems. And skin cells are like brave knights, reading books on how to protect you from sneaky germs!



Can things go wrong with our genes?

Right at the beginning of our lives, when the gene 'books' are being copied across from our parents into our cell libraries, sometimes a spelling mistake is made. As researchers, we can look for these spelling mistakes to try to work out why some people's genes don't seem to work properly.

Every cell has all the gene 'books' in their library, and sometimes they read something they don't like, something they should not have read. This can mean the cell doesn't work properly.



So what is DNA methylation?

This is an important area of research that we're looking at in the lab!

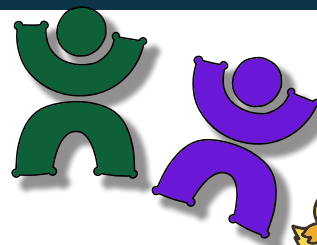
Sometimes a cell adds notes to a gene 'book'. The little pieces of information change how your cell reads the gene 'book' (even though it doesn't actually change its original letter sequence). These edits are reversible - imagine the notes are written in pencil, so if the cell changes its mind, it can rub them out and the gene 'book' can be read normally again.

Sometimes these edits are really useful, helping the cells work better. But we think that sometimes this editing can go wrong - the cell might not work properly and disease might happen. This is what we're trying to find out!

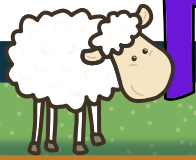


So now you know your body is packed full of tiny little stories - how cool is that?

Time to play!



Scan here to see all our newsletters!



WORD SEARCH

challenge!



Here's another awesome puzzle designed by our guest editor!

Can you find all these words hidden in the word search grid?

- | | | | |
|--------------|--------------------------|------------|--------------------------|
| Archie | <input type="checkbox"/> | Poo | <input type="checkbox"/> |
| Biopsy | <input type="checkbox"/> | Poo Chart | <input type="checkbox"/> |
| Bowel | <input type="checkbox"/> | Research | <input type="checkbox"/> |
| Colitis | <input type="checkbox"/> | Sausage | <input type="checkbox"/> |
| Colonoscopy | <input type="checkbox"/> | Toilet | <input type="checkbox"/> |
| Crohns | <input type="checkbox"/> | Ulcerative | <input type="checkbox"/> |
| Diet | <input type="checkbox"/> | | |
| Gut | <input type="checkbox"/> | | |
| Hospital | <input type="checkbox"/> | | |
| Hard to pass | <input type="checkbox"/> | | |
| IBD | <input type="checkbox"/> | | |
| Inflamed | <input type="checkbox"/> | | |
| Medicine | <input type="checkbox"/> | | |
| Nurses | <input type="checkbox"/> | | |

Tip: if there are two words or more, there are **no spaces** between the words in the grid

It took me:

mins and secs to find all the words!



And finally...

...a big thank you to our guest editor

ARCHIE



Would you like to be our guest editor and help create a future newsletter?

Let Claire know here:

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? Maybe you would like to interview a member of staff? Or you have a 'Tip of the month' to share? 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

