

Meaningful Learning Experiences

Strategic Commitment	✓	Part of a careers initiative across Greater Manchester
Curriculum Provision	✓	A GCSE Science topic that is 'difficult to understand'
Employer Partnerships	✓	Involving two local healthcare organisations
Reflective Young People	✓	Developing skills, particularly working with others
Informed Career Choices	✓	Broadening understanding about roles in Healthcare

Students discover that 'Osmosis and Diffusion' is more than a Science topic for dialysis patients

In preparation for GCSE studies, year 9 students at Alder Community High School in Manchester cover a series of Science topics, including Osmosis & Diffusion. The teacher brief for this project stated that, *'Understanding the processes of diffusion and osmosis is central to understanding transport in both animals and plants which forms a significant part of the GCSE syllabus. Students find it difficult to understand; I think because they find it difficult to visualise what is happening to particles which are too small to see and then use these ideas to explain phenomena such as movement of water into a plant root.'*

Discussions with the Greater Manchester Kidney Information Network (GMKIN) revealed particular challenges in their work with young patients. The students were asked to provide some insights into teenage lifestyle priorities that would inform the work of GMKIN. This required students to learn about the different forms of kidney dialysis and the role of osmosis and diffusion.

The project was enriched when a consultant kidney specialist from a local NHS hospital trust offered to provide additional insights. A series of video clips recorded informally on a mobile phone allowed students to hear about the role and career path of the consultant and a specialist nurse, as well as from a young patient – who first required treatment soon after taking her GCSE exams – explaining how dialysis works in practice.

The words used by students to describe teenage lifestyle priorities were used by GMKIN to create a 'wordle' to inform how they can best support young people living with kidney conditions.

Benefits for the Students

The thing I am most proud of as a result of this experience is:

- *'How well the class worked in small groups and how efficiently we all managed to work.'*
- *'Learning about dialysis. I did not know anything about it before.'*
- *'Producing a good piece of work and learning about the future.'*
- *'That I have gained more knowledge of next steps after high school than I already had.'*

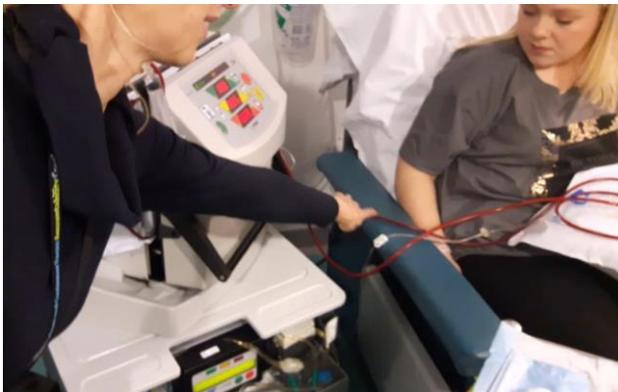
Self-assessment revealed the task had particularly developed students' skills in working well with others on projects and they had become interested in learning new information and skills.

Benefits for the School

- Year 9 students are taught Science topics as part of a learning carousel. Powerpoint and video classroom resources allowed flexible delivery over an extended period.
- Engaging two external organisations supported the objectives of the 'Bridge GM' careers hub, of which the school is part.
- 64% of students said they were not sure about how the project had helped them think about destination beyond school, but 36% said they were more likely to apply for university.

Benefits for the Employer

- Greater Manchester Kidney Information Network intended to use the project to demonstrate their efforts to support young patients with kidney conditions.
- The link to the hospital practitioners was facilitated by the 'Widening Participating' team at Manchester University NHS Foundation Trust. Evaluation data indicated that student had been both encouraged to consider university education become more aware of different roles in the healthcare profession.



A kidney patient organisation in Manchester asked students to apply their learning and explain the different types of dialysis and to give their own insights to teenage priorities, which could help guide thinking about support for young patients. Classroom resources included video clips from a kidney consultant and young patient, who explained the impact of dialysis on her lifestyle.

Dialysis

So, imagine you have kidney disease and you have to consider the effects of going out for a meal with your mates:

Pizza = Na + K + Ca + Mg + P



Coke = H₂O + Na + Ca + P



Dialysis Challenge

The Greater Manchester Kidney Information Network will publish a 'Wordle' on their website summarising your key words about teenagers' lifestyle priorities.

Alongside this, they will publish the best teenager-friendly summary that explains how the two methods of dialysis work and their relative advantages.



Courtney + Grace

Kidney:
Going out
Mates/Friends
what food you eat
Concentration
School work
Diet

Georgia, Scarlett and
Cally

Dialysis

Haemodialysis is...

Someone who has a kidney failure, and they will require artificial kidney treatment. Haemodialysis is the most common type of dialysis, it is the one most people know about. During the haemodialysis process, blood passes along the tube and into an external machine that filters it, before it's passed back into the arm along another tube.

Advantages Of Haemodialysis

The main advantage of haemodialysis is that you have 4 dialysis free days a week. This would be an advantage for teenagers as you would be able to make more plans, to do whatever you like.

Peritoneal Dialysis is...

Peritoneal dialysis is a treatment for kidney failure that uses the lining of your abdomen or stomach, to filter your blood inside your body. Peritoneal dialysis can be done quite easily at home and can sometimes be done while you sleep, but it needs to be done every day.

Advantages Of Peritoneal Dialysis

Peritoneal dialysis may be recommended to teenagers as regular visits are not required, so you have more freedom than you would having haemodialysis. There are also fewer restrictions on food, so as a teenager this would be an advantage for you as you would have no restrictions to go out with friends.

Cinema
Roller/ice-skating
Bowling
Pizza
Baconage
Confussion
Unorganised friends
Social life
PS4 games
Chicken
McDonalds
Takeaway
KFC
Coke
lemonade
Coffee
Caffeine.