



Helena Begley



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## About the Innovators

**Helena Begley** is a Senior Medical Scientist in the blood transfusion lab at Naas General Hospital (NGH). **Alison Harper** is a Chief Medical Scientist at Tallaght University Hospital (TUH) and **Fergus Guilfoyle** is a Chief Medical Scientist at the Coombe Women and Infants University Hospital (CWIUH). When blood stock management was discussed at a hospital group meeting, our three innovators combined their scientific expertise and medical laboratory process knowledge to develop an innovative solution to address the challenge.

## About Health Innovation Hub Ireland

Health services in Ireland and across the world are increasingly seeking innovations in health-related technology, products and services to drive improvements in the quality, access and value of healthcare delivery.

Health Innovation Hub Ireland (HIHI) brings enterprises and healthcare professionals together to **test, validate** and **help commercialise** innovative technologies, products and services, while enabling greater innovation in healthcare delivery.

HIHI supports the building of an **innovation culture** within the **health service** through a suite of knowledge building resources and guidance for healthcare professionals on the key steps from ideation to adoption.

HIHI works with those with ideas that address unmet healthcare needs to develop new products and processes within the healthcare system and stimulate a pipeline of new needs-driven innovations for the future.

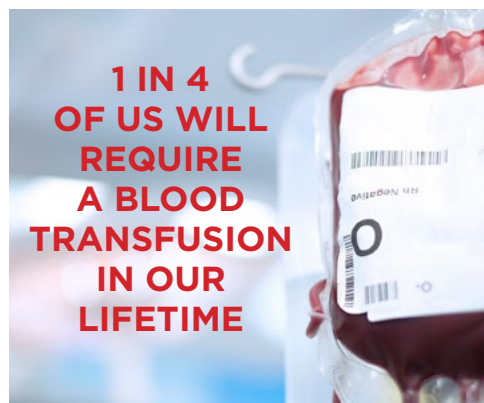


## The Healthcare Challenge

Blood is a perishable product with a 35-day shelf life from date of donation; therefore, good stock management is crucial. There is a greater demand for blood with an increasing population and a declining donor pool resulting in frequent shortages. The challenge is to balance having enough stock in a hospital to meet clinical demands at all times whilst keeping expiry losses at a minimum. Over-ordering impacts costs to the hospital and increases risk of wastage through expiry of units while under ordering can affect patient safety.

A blood stock management meeting between the hospital group, NGH, TUH and the Coombe in 2018, recognised the blood stock management process should to be improved. Excessive amounts of O Negative blood were ordered.

O Negative is always in demand and used in emergencies when there is no time to test the patient's blood type. Orders were well above the recommended stock levels at all three sites.



*This is me with my daughter Chloe in Portlaoise hospital in 2008. Chloe had a massive bleed during the pregnancy. She had lost approximately 75% of her total blood volume and required emergency transfusion at birth or she would not have survived.*

# The solution

A weekly blood exchange programme between the three sites aiming to improve O Negative stock levels began in 2019. This involved the exchange of blood, with two weeks to expiration, from NGH and CWIUH for blood with longer expiry dates from TUH. All blood groups were included to improve stock management across the board. This is the only hospital group in the country currently exchanging blood. This exchange programme has resulted in a reduction in the number of expiring units needing transfer to TUH, expiry dates

have dropped, the appropriate use of O Negative blood has been improved and there has been a reduction in the overall orders for blood placed with the Irish Blood Transfusion Services (IBTS).

The weekly blood exchange programme resulted in a €30,000 saving in 2019, reduced the overall blood orders, decreased blood waste due to expiration, and increased appropriate use of O negative blood use from 65% to 83%.

## About HIHI Spark Ignite

The Health Innovation Hub collaborated with the Office of Nursing and Midwifery Service Development, National Doctors Training and Planning, and the Galway Local Enterprise Office to deliver the only bottom up, staff facing, innovation competition open to all HSE staff. The programme received over 150 applications from all disciplines and grades across the HSE.

Thirty-six applications were selected to attend an innovation workshop to develop their idea by building a business proposition and preparing a pitch. The workshop participants pitched their ideas to a panel of experienced judges to win prize funding to develop their idea towards reality.

## Outcome Report/Next Steps

Through this competition, their solution was identified as scalable and could easily be rolled out nationally to other hospital groups. In addition, there is a logistical infrastructure in place for blood delivery comprising temperature controlled vans to exchange blood between different sites. Further exchange programmes would result in better blood stock management, less wastage of blood, savings for the hospitals involved and better O Negative use.

The team are working with various groups within the HSE to scale their solution across the system. This will involve the communication, training, and set-up of their system in a number of pilot sites to show its ease of use, efficacy, and independence.

In light of recent national blood shortages, it is all the more important that all stakeholders do as much as possible to manage precious blood stocks effectively and optimally so that blood is always available for patients whenever and wherever they need it.

## Role of HIHI

Helena, Alison, and Fergus applied to the HIHI Spark Ignite Programme with their idea to address the growing concerns for blood stock management.

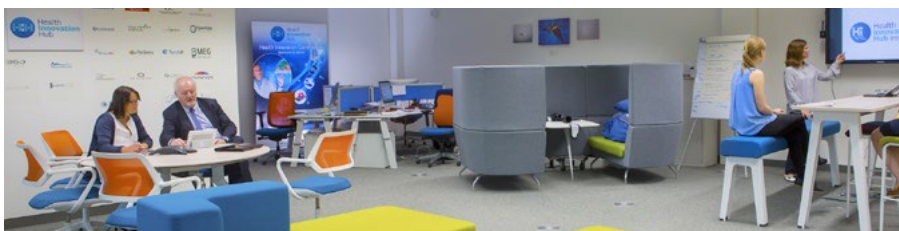
They won the team category in Dublin regional final with their innovative initiative between their three hospitals. Through HIHI Spark Ignite, Alison, Helena, and Fergus developed a prize winning presentation displaying the benefits of their systems to the hospitals,

the clinical teams, and the patients. The evidence from their pilot study showed increased patient benefits by reducing the risk of low blood supplies in emergencies, and cost savings to the hospitals.

Through the HIHI Spark Ignite Programme, the team articulated the benefits of their project in a way that addressed the needs of multiple stakeholders. They showed their solution to be simple, effective, and scalable to other hospital groups.

## Testimonial

*The HIHI Spark Ignite experience was a very positive one and a great opportunity particularly for health care staff members like me who work in a smaller hospital settings. The workshops were very informative and I learned a lot about presenting information in a positive and effective way. It has led to a lot of interest from other groups. The ACSLM (Academy of Clinical Science and Laboratory Medicine) asked me to give a webinar about blood stock management and I published an article in their magazine Converse. I was also asked to present the data to the doctors at the Coombe hospital. Recently I was asked to give a lecture on the topic to the transfusion students of the Biomedical MSc class in Technological University Dublin. We were shortlisted for the Irish healthcare awards in December 2020.*



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