Issue 2

August 2023

Edinburgh Critical Care Research Group

ECCRG RESEARCH NEWS

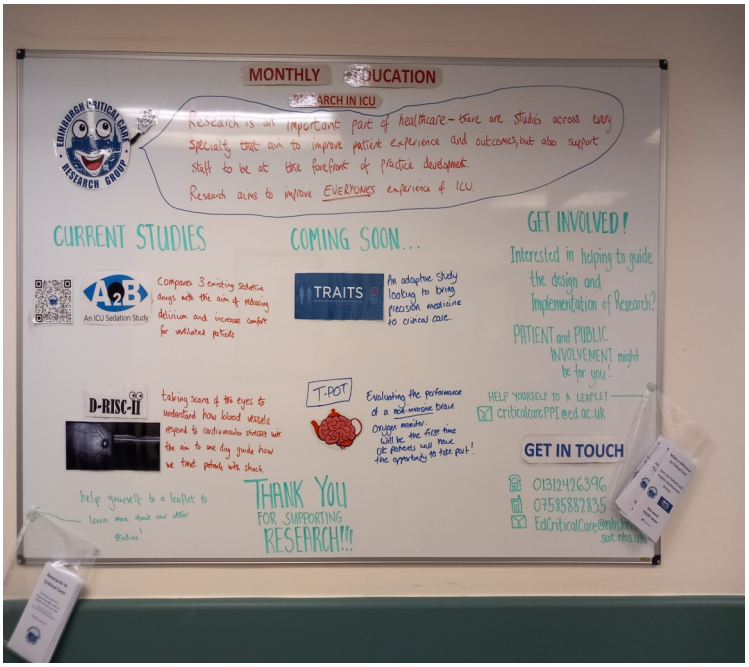
Critical Care—Critical Research

What Does Research Mean To You?

Thesaurus gives us: analysis, exploration, inquiry, investigation—the team at RIE, WGH and SJH live and breathe this definition and work hard to bring more studies and trials into ICU for our patients and our clinical colleagues. Let us know what it means to you—ping us an email (our email address is on **page 6, or tweet us on @EdCriticalCare).**

Inside this issue, you'll find out about the **LicuiD** study on page 2 which explains how we use bodily fluids to aid diagnosis, prognosis and therapies; explore how we **network** during a study and what that looks like on a great **infographic.** We welcomed our two new team members **Jessica and Maggie** recently, find out what brought them to ECCRG on **pages 2 and 4** and say hello to them in person when you see them on the ward!

ICU Education Board

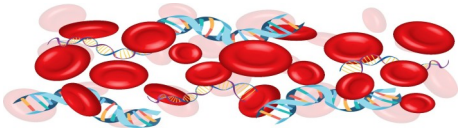


This month we have contributed to the Education Board in Ward 118!

We're thrilled to highlight why we do what we do, and showcase some of our many (!) studies. Working closely with our clinical colleagues is crucial to the success of research, especially as all findings aim to improve their experience too.

Inside this issue:

Liquid Biopsy In Critical Care Is Here!



Liquid biopsies - initially developed in the oncology and neonatal fields - uses body fluids as an alternate, minimally invasive, source of "biopsy". Cells in our body die, either as a normal process, or during disease, and release cell contents into fluid compartments such as blood and urine. These cell contents include cell-free RNA and DNA, which can be processed and sequenced. Using computational approaches, we can assign results from RNA and DNA analysis to tissue and cell origins, providing a "biopsy" for cells and organs that have died, as part of say, multiple organ injury.

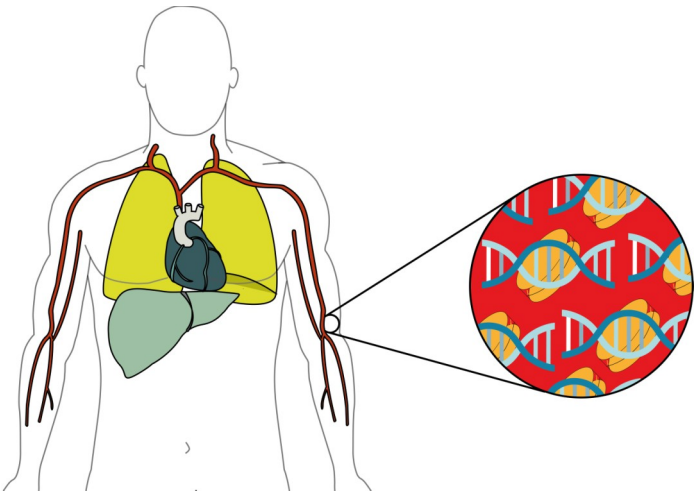
To develop these liquid biopsy methods in critical illness, we designed the **Liquid biopsy In the Critically Unwell wIth acute Disease (LicuiD) study.** We have recruited our first patient in July 2023! We are recruiting patients who present following out-of-hospital cardiac arrest, or with severe renal failure because of the high rate of multiple organ injury. We collect samples within 48 hours of admission, and will correlate cell-free RNA and DNA data with clinical information and laboratory results. The information we can obtain from these "liquid biopsies" may help us understand pathophysiology, and aid diagnosis, prognosis and therapeutic responses.

Chief Investigator

Simon Biddie

Principal Investigator

Tom Craven



Meet Jessica—Our New Team Member

I recently joined the team as a Senior Research Nurse and am looking forward to learning how to successfully conduct research in ICU. Before this, my first research nurse job was in the Clinical Research Facility (CRF) in March 2018 and I left this team to join the Emergency Medicine Research Group (EMERGE) to specialise in my passion for neurosurgery and stroke trials. In my new role in CCRG, I'll lead on neuro-ICU trials given my background in recruiting potential participants with neurological conditions and liaising with their families. Research and neurosciences has been my longstanding interest as I know that research will ultimately improve patient outcomes in the future.

We're very glad you're in the team Jessica and our participants are lucky to have someone with your experience.

Looking great on the Covid memorial seats at RIE!

Find out all about the fascinating REALIST study on page 5

GenOMICC Study: Who, What, Where?

Who we are: GenOMICC, led by Professor Kenneth Baillie, is a non-interventional clinical research study exploring the genetics of critical illness and is well established in almost every ICU in the UK (and in some other countries). The design of GenOMICC is relatively simple and only requires a small amount of blood from eligible, consenting patients. The blood is then used to obtain a DNA sample.

What we do: Our genes (or DNA) influence why some people become critically ill whilst others experience only mild or no symptoms at all from the same condition. By comparing DNA between critically ill patients and members of the general population, we aim to discover specific genes that might control the processes that lead to life-threatening illness. By finding the genes that matter, we aim to develop better treatments for patients in the future.

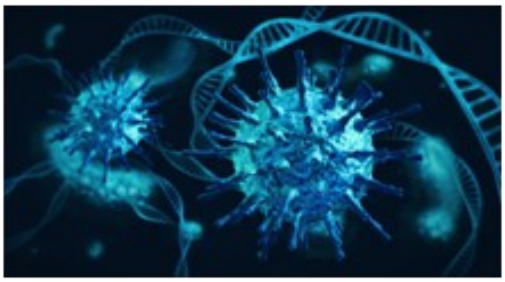
Where we are: GenOMICC was initially approved in 2015 for patient recruitment (in Scotland) before further extending to cover the whole of the UK in 2019, not long before Covid became a serious public health concern. As a critical care study exploring infections, we were well placed to start recruiting Covid patients immediately and within only a few months, we had enough patients to make our first genetic discoveries. We continue to evolve post pandemic, where we recruit many patients from a host of other conditions. Liaising with the Critical Care Research Team as well as with the associated PPI Group offers us a sharpened perspective on the study.

Fiona Griffiths, Study Manager

Chief Investigator
Kenneth Baillie

More information about **GenOMICC** can be found on our website **https://genomicc.org/**

or scanning here:



RIE, WGH and SJH working together for research

Many of our readers know we do critical care research at RIE. But did you know we also have ECCRG nurses and doctors at WGH and SJH?

ECCRG nurses rotate between sites, with a larger number based at RIE. There is constant dialogue between sites, sharing experiences, knowledge and processes.

Some research studies occur at all sites, such as Genomicc featured in this newsletter. While others are unique to one hospital depending on a speciality, for example neurology studies only recruit at RIE. We know that participating in research can benefit our patients and feel strongly that all NHSLothian critical care patients should be able to access research if they want it.

Networking with research and clinical colleagues is vital—find out what this looks like on the infographic on page 4

.. And Say Hi to Maggie Too!

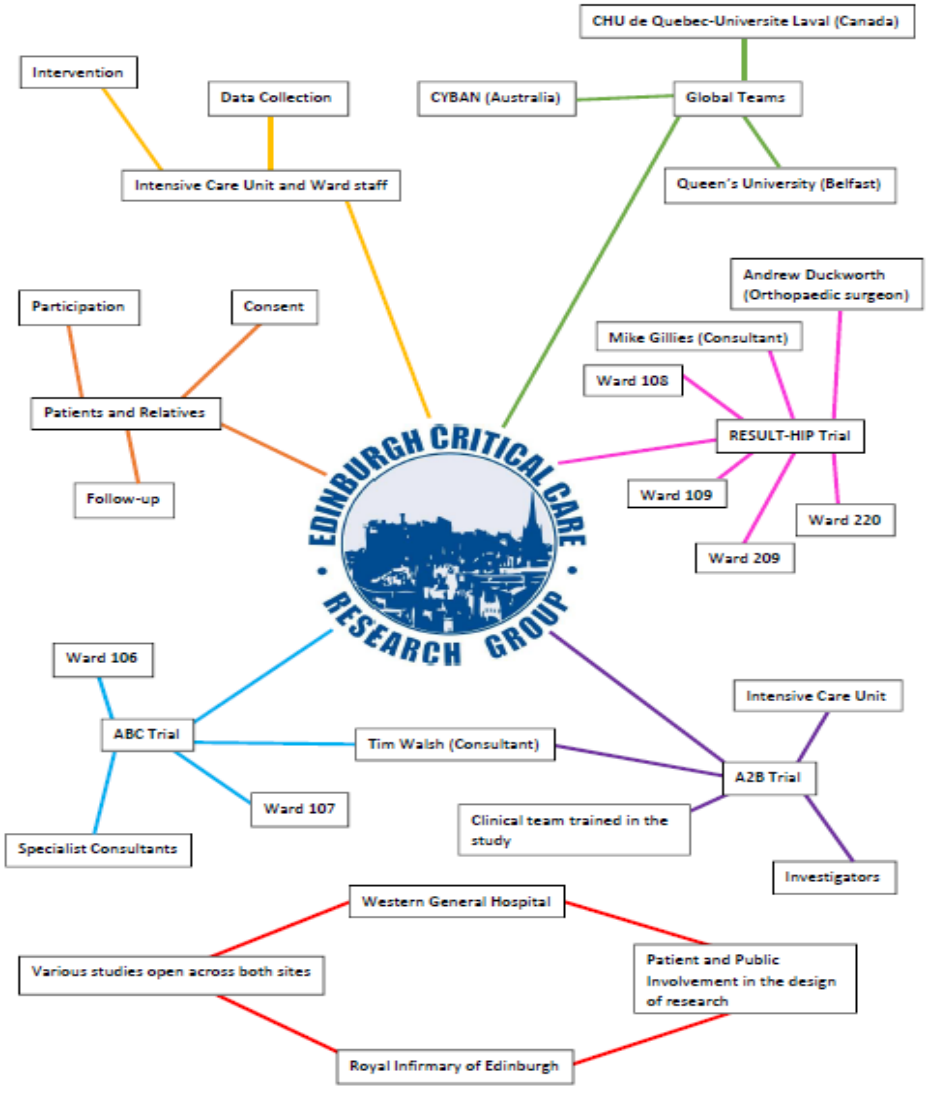
We're delighted to have welcomed Maggie Wishart to our team recently as Senior Research Nurse. Here's what she's been up to before joining the team:

"I have been a nurse for 20 years, and worked in Leeds, Oxford and Glasgow, mainly in intensive care. I moved into research nursing eight years ago when I joined the Edinburgh Clinical Research Facility. In 2020, I decided to undertake an MSc in Critical Care and will be finishing the course in Autumn this year. Now, in this new role with the Edinburgh Critical Care Research Group, I will be able to combine my two passions of research and critical care, thus furthering my dastardly plan ***to take over the world****.*

The ECCRG team have been really welcoming and demonstrate a genuine passion to carry out the research we need to improve the care of our critically ill patients "

We think you'll do well in the world domination stakes too Maggie—extremely glad to have you on board!!

Networking Is Crucial To Research



... And here's why!

"As a research team in a general intensive care unit, we have various studies spread across many different areas and specialties. This means we interact with different people, in different places.

While our sedation study keeps us in ICU, our transfusion studies take us across the hospital into almost every ward!

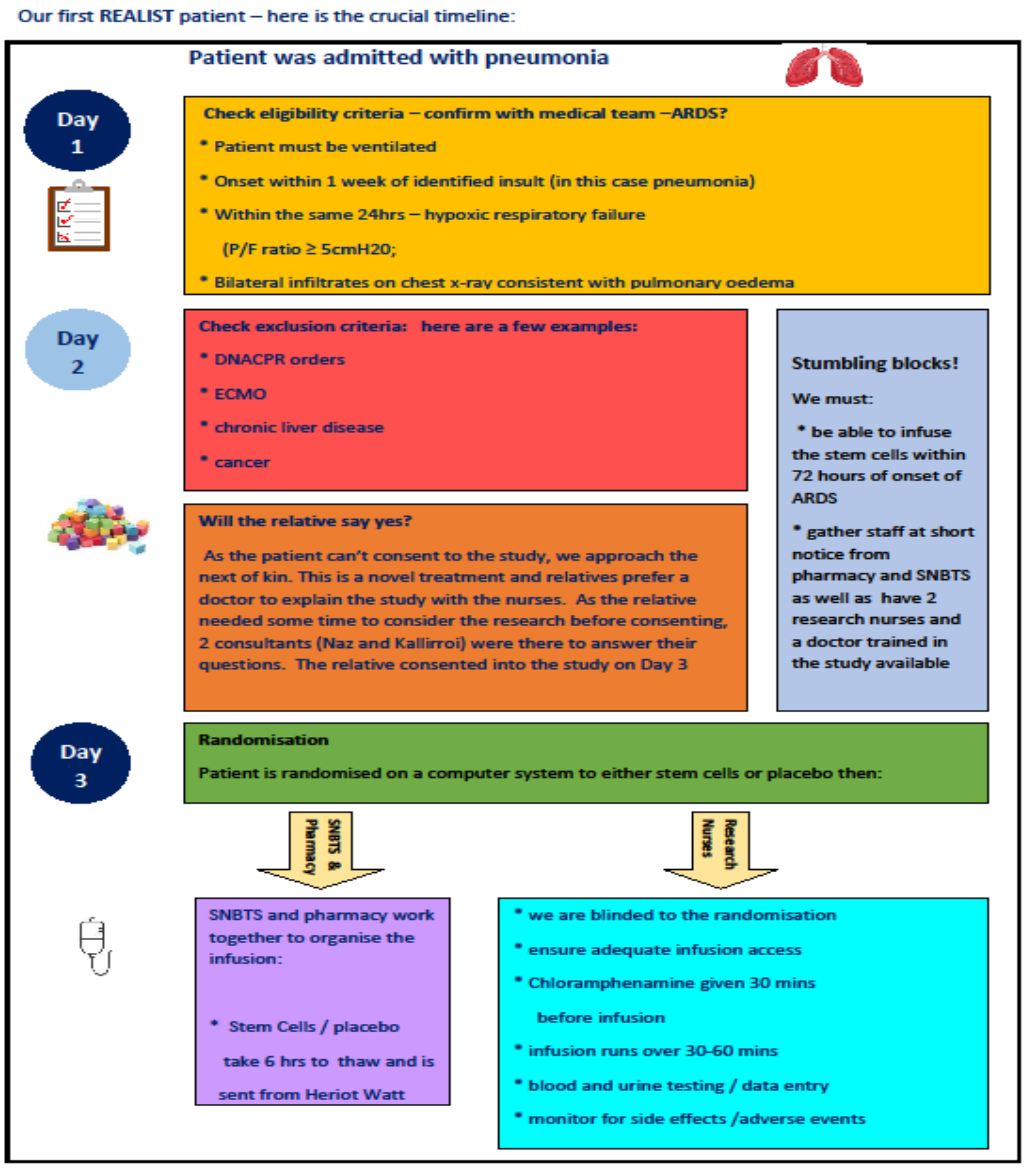
Some of our studies are based even further away than that, as we regularly interact with teams as far away as Australia and (not so far away) Belfast! "

Scott Simpson
Senior Research Nurse

The Realist Study—Our First Recruit!

Principal Investigator

Kallirroi Kefala



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Repair of Acute Respiratory Distress Syndrome by Stromal Cell Administration (REALIST

REALIST has been notoriously difficult to recruit, however, in June we finally recruited our first patient! From our infographic here you can see the timeline from the patient being admitted through to follow up, which involves explaining the research to the patient once they have regained capacity and hope they agree to stay part of the research!

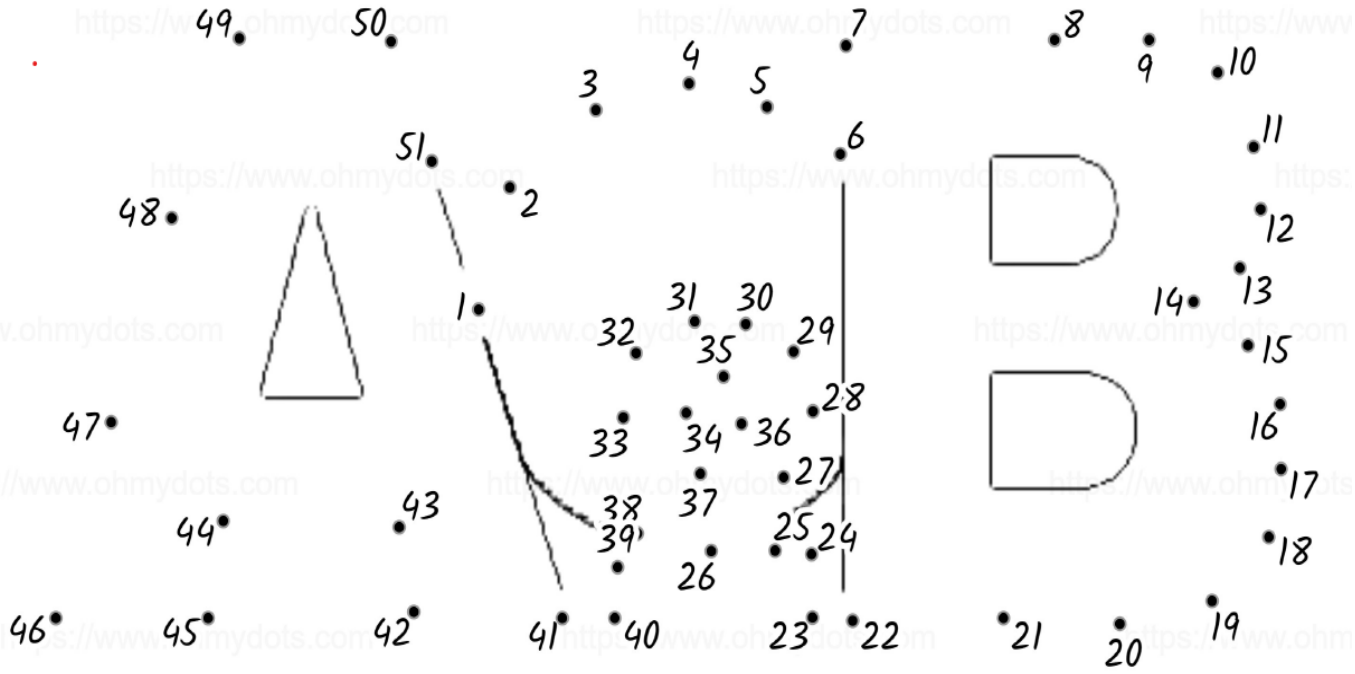
What are stromal cells? - also known as mesenchymal stem cells (MSCs) which are present in almost all tissues. This study uses cells derived from umbilical cords stromal cells which can become connective tissue of any organ. An important property of MSCs is their ability to suppress an excessive immune response such as in ARDS.

What is ARDS? - A form of acute respiratory failure characterised by a diffuse inflammation to the lungs.

* Disruption of alveolar epithelium
* Endothelial damage
* Release of mediators that cause increase in permeability
* Neutrophil and platelet aggregation
* Atelectasis due to interstitial oedema
* Damage causes fibrosis and alveolar collapse
* Decreased pulmonary compliance

Dot to Dot—Which Study?

Print off and hand it to us to be in the draw for a PRIZE!!!



Acronym Buster!

Ever wondered what ABC stands for?

Get In Touch!

API—Associate Principal Investigator

CI - Chief Investigator

CRF—Clinical Research Facility

Or Case Report Form

GCP— Good Clinical Practice

PerLR—Personal Legal Representative

PI—Principal Investigator

PIS—Patient Information Sheet

PPI—Patient and Public Involvement

ProLR—Professional Legal Representative

REC—Research Ethics committee

Need to know anything else?

Drop us an email!

Six Studies:

ABC: **A**naemia management with red **B**lood **C**ell transfusion to improve post-intensive care disability

REALIST: **RE**pair of **A**cute respiratory distress syndrome by stromal cel**L** ad-min**IST**ration

RESULT Hip: The impact of **RES**trictive **V**ers**U**s Libera**L** **T**ransfusion strategy on cardiac injury and death in patients undergoing surgery for **Hip** Fracture

Adapt Sepsis: Biom**A**rker-guided **D**uration of **A**ntibiotic treatment in hospitalized **P**a**T**ients with suspected **Sepsis**

D-RISC ii: **D**irect **R**etinal **I**maging for **S**hock **R**esuscitation in **C**ritical Ill adults

RemapCap: **R**andomized, **E**mbedded, **M**ultifactorial, **A**daptive **p**latform trial for **C**ommunity-**A**cquired **P**neumonia

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