

PEARLS

POCUS for Emergency and Acute Care
in Resource-Limited Settings

Welcome to our
Monthly Newsletter



First PEARLS-ED course in Honiara, Solomon Islands, 6-8th Nov, 2024



REMINDERS

Upcoming:



**Monday 18th November
+7AM GMT**

Image Review Session
Dr Lewis McLean
<https://unimelb.zoom.us/j/89171569520>
PW: 584496



**Monday 2nd December
+7AM GMT**

Monthly Lecture series
Dr Lewis McLean
Rheumatic Heart Disease
<https://unimelb.zoom.us/j/81618424483>
PW: 316519

**LAST EVENTS
OF 2024!**

02

PEARLS Annual
Awards

05

PEARLS in
numbers

06

Feature
news

07

Education
corner

**PEARLS
ANNUAL
AWARDS
2024**



**PEARLS Educator of the Year
Dr Lawrence Boe**



**PEARLS Learner of the Year
Dr Ignatius Bolokon jr**

This year, PEARLS's inaugural awards are established to recognise and celebrate the amazing work and achievements of members in our community, who are exceptionally committed to the spirit of our movement and are dedicated to improving the standard of POCUS training and education in their country and beyond.

We are extremely delighted to announce Dr Lawrence Boe as the winner of our inaugural **PEARLS Educator of the Year** award. Lawrence was one of our first learners who has significantly dedicated his time and passion in continuously upskilling himself and in taking the initiative to train his colleagues. He recently graduated to become one of our faculty members, and has already served as faculty on two projects - first at home in Vanuatu, and then having just taught in Solomon Islands. Lawrence is a rural generalist trainee and the sole doctor on Ambae. Getting to Solomons meant a 4-hour boat-ride to Santo, then being the single person boarding his flight from Luganville to Honiara! This award was well-deserved by Lawrence and we can't wait to see him continue this trajectory to expand his passion for POCUS and excellent patient care.

Dr Ignatius Bolokon from the PNG is our inaugural winner of the **PEARLS Learner of the year** award. He has successfully completed 34 scans this year - the highest number of any PEARLS Learners - which has seen his scanning skills rapidly improve. Ignatius also recently graduated to become one of our faculties and he's currently teaching with us in Solomon Islands! We have no doubt he has contributed significantly to improving patient care on a daily basis by successfully utilising his POCUS skills and will continue being an instrumental member of our faculty team. Amazing work Ignatius!

Message from Jono



Dr Jono Henry

'Genius is 1% inspiration and 99% perspiration' - Thomas Edison.

I'm writing this having just landed in Honiara - only my 2nd time travelling to teach PEARLS - and the perspiration is no joke! For our last newsletter of the year, I've been reflecting on what has made our movement a success - let's call it our 'shared genius'.

That initial 1% inspiration came from Dr Mick Killeen's rural coaching project in NZ a few years back, where he piloted and proved to us all the feasibility of remote coaching and image review.

But the 99% perspiration of finessing each small detail has made PEARLS what it is today. I want to highlight 2 groups that 'sweat it out' the most behind the scenes, and don't get enough credit:

- **PEARLS Country Leads & Local Champions:** The task of connecting across oceans and timezones, organising remotely and locally, seeking funding, amassing equipment, corralling clinicians to form a travelling team etc. etc. etc. is enormous. Each of you who've shown leadership to grow PEARLS in a bespoke way for each particular country - I applaud you.
- **Cloud Coordinator:** Dr Ivan Chan took ownership of transitioning PEARLS to a new cloud this year - and he's now well past halfway on that project. As you can imagine, it's been a mammoth undertaking. He now needs some support to keep the cloud humming and maintained, if anyone is interested in joining his cloud coordination team. (I must mention, this humble Melbourne intern Ivan is a top-notch scanner too. I often shake my head reminiscing at my bumbling efforts at doctoring as a PGY-1, compared to what he and other junior doctors can achieve nowadays with the power of POCUS!)

So here's to a great 2025! Big picture - continue progressing each country's POCUS development as required, with our usual ongoing support and aiming for regular return trips and courses. But it probably will be a year to feather the brakes a bit, and slow our expansion rate into new countries. Let's all work together to optimise our 'product' - maybe the motto for the next 12 months should be Quality over Quantity ...

Happy New Year to you all.

Vacancies

PEARLS has mini-teams working on various projects in the background. We are on the lookout for anyone interested in contributing in these fields:

HIGHEST PRIORITY:

- **PEARLS Tech Support team**
- **PEARLS Country Leads & Local Leads - spots open for senior leads and junior partners in multiple countries**
- **PEARLS Cloud Coordination team - supporting lead Dr Ivan Chan**

- *PEARLS Publicity, Social media, Marketing & Website team*
- *PEARLS Remote Coaches*
- *PEARLS Lecture Series - speaker recruitment and coordination - partnered with medical student team*

To enquire or request a Position Description, please email us at pearls.enquiries@gmail.com. Many positions are open to medical students as well, often in partnership with a senior lead.

A brief timeline of PEARLS's history



AUGUST 2022
INAUGURAL PEARLS-ED
WORKSHOP IN VANUATU
**4 FACULTY AND 10
LEARNERS.**



NOVEMBER 2023
PARTNERED WITH DR LEWIS
MCLEAN AND THE ICU
COMMUNITY TO LAUNCH THE
PEARLS-CC WORKSHOP. THIS
OCCURRED IN PNG ALONG WITH
A PEARLS-ED COURSE
5 FACULTY AND 20 LEARNERS.



MAY 2024
OUR FIRST RETURN TRIP TO
TONGA TO DELIVERY BOTH
PEARLS-ED AND PEARLS-CC
WORKSHOPS TO OUR LEARNERS
6 FACULTY AND 11 LEARNERS



AUGUST 2024
PEARLS EXTENDED BEYOND
THE PACIFIC ISLANDS AND
DELIVER THE FIRST PEARLS-ED
COURSE IN BOTSWANA, PLUS
THE FIRST PEARLS-CC COURSE
IN FIJI.



NOVEMBER 2024
PEARLS DELIVERED THE FIRST
PEARLS-ED AND PEARLS-CC
WORKSHOPS IN SOLOMON
ISLANDS.
THE FIRST WORKSHOPS IN
SAMOA ARE PLANNED FOR
LATER THIS MONTH



MAY 2023
SECOND PEARLS-ED
WORKSHOP - IN TONGA
**5 FACULTY AND 11
LEARNERS.**



MARCH 2024
OUR FIRST EVER 'PEARLS
RETURN TRIP' - TO
VANUATU
**6 FACULTY AND 23
LEARNERS.**



JUNE 2024
FIRST 'SCOUT' SENT TO
HONIARA, SOLOMON ISLANDS
TO ESTABLISH INITIAL
REMOTE TRAINING TO **4
LEARNERS**



OCTOBER 2024
PEARLS EXTENDED INTO ASIA
TO DELIVER THE FIRST IN-
PERSON WORKSHOPS IN
KATHMANDU, NEPAL



PEARLS IN NUMBERS

Dr Ivan Chan - PEARLS Cloud Coordinator and PEARLS Research team



139

Clinicians Trained

30

QA image reviewers on cloud

39

Faculty who've taught on 1 or more in-country PEARLS courses

41 + 6

Butterfly probes linked to cloud: Distributed through funding support of partners + self-sourced or funded by local health system

13

In-person workshops across 7 countries (8 PEARLS-ED, 5 PEARLS-CC): Vanuatu, Tonga, PNG, Fiji, Botswana, Nepal, Solomon Islands

5

Local clinicians onboarded as faculty

11

Learners began PEARLS training through remote coaching - from PNG, Kiribati, Nauru and Solomon Islands

25

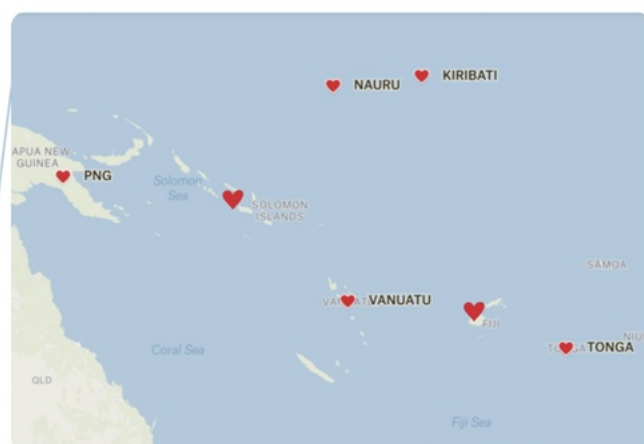
Number of educational videos on Youtube channel

348

Number of social media followers across Twitter & Youtube

850

Studies uploaded to cloud





LIVE UPDATES FROM SOLOMON ISLANDS



Back row: Dr Lewis McLean (faculty), Dr Kate Gleeson (faculty), Dr Jonathan Henry (course director), Dr Lawrence Boe (faculty), Jo McCann (faculty), Dr Aloysius Samo, Dr Ellison Manegehe, Dr Patrick Toito'ona (PEARLS Course 1st Prize winner)

Middle row: Dr Janella Solomon (NRH medical superintendent), Beth Nariman (faculty), Dr Ignatius Bolokon (faculty), Dr Clement Basigelema, Dr Fredrick Fangalasu'u, Dr Eddie Hou, Dr Paul Airau, Dr Noel Siope, Michael Samani (DFAT)

Front row: Dr Chanel Sabino, Dr Alison Lalega, Dr Lorolyn Posala, Dr Wendy Waeta'a, Dr Inity Garunu, Dr Celestine Tofuramo, Dr Samantha Beuka

Last week, our marvellous team of PEARLS faculty delivered the first ever PEARLS-ED workshop in Honiara, Solomon Islands to 15 doctors at the National Referral Hospital. The team comprised of PEARLS staples Dr Jono Henry, Dr Lewis McLean and Jo McCann along with enthusiastic first-timers Dr Kate Gleeson, Dr Ignatius Bolokon and sonographer Beth Nariman, as well as Dr Lawrence Boe, our graduate learner-cum-faculty.

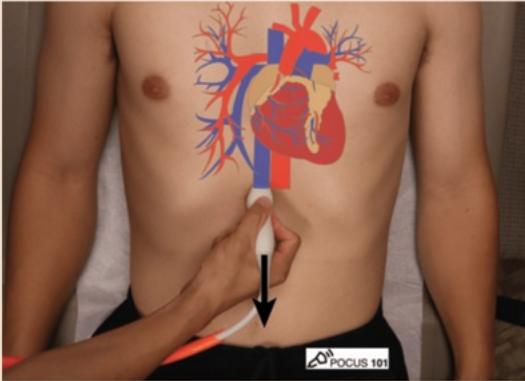
The workshop was a huge success and from the photographic evidence, everyone has had a lot of fun!!! Dr Patrick Toito'ona also aced the exams and snatched the PEARLS-ED Course 1st Prize! Super well done!

This week the team, joined by Dr Dan de Wit and Dr Cornelia Kilalang, are delivering the first PEARLS-CC course to our enthusiastic Solomon Islands doctors. We can't wait to hear more updates from them.

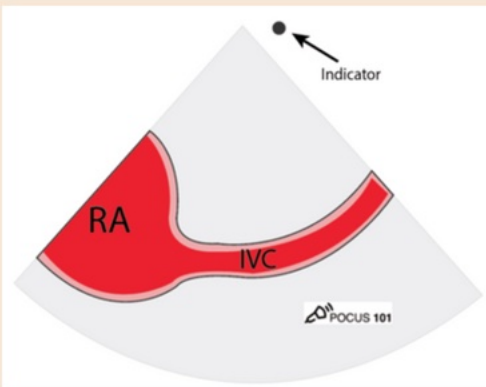
For now, please enjoy some fun photos from the team!



Tips of the month: Inferior Vena Cava



IVC Ultrasound Probe Position



IVC View Illustration

Reference: https://www.pocus101.com/cardiac-ultrasound-echocardiography-made-easy-step-by-step-guide/#Step_5_Inferior_Vena_Cava_IVC_View

Step 1

From the Subxiphoid view with the patient still in the supinated position with knees bent, keep the right atrium in view.

Step 2

Locate the Inferior Vena Cava within the Liver and center it on the ultrasound screen.

Step 3

Once the IVC is centered on the screen, rotate the transducer clockwise (to your right) to bring the indicator down toward the feet (play the instructional video).

Assessing for IVC Collapsibility:

- For Spontaneously Breathing Patients: Have them take a deep breath or have them sniff in. The maximum IVC diameter will be seen during expiration and the minimum IVC diameter will be seen during inspiration for these patients.
- For Ventilated Patients: The positive pressure from the ventilator will have the opposite effect on the IVC compared to spontaneously breathing patients. The maximum IVC diameter will be seen during inspiration and the minimum IVC diameter will be seen during expiration for these patients.

Monthly Lecture Series: POCUS in High Altitudes

The PEARLS Monthly lecture series occurs on the **first** Monday of each month at +7AM GMT.

November's lecture was on "*POCUS in High Altitudes*", delivered by Dr Greg Stiller, an Emergency Medicine Physician currently based in Colorado, USA. He has an impressive range of expertise, including wilderness medicine, military medicine and flight medicine and has worked in multiple austere settings including the Everest Base Camp



Dr Greg Stiller, Colorado, USA

Alpine medicine, especially on Mount Everest, is a unique and challenging environment to live, work and practise medicine. Medical knowledge and skills are constantly challenged and required to adapt to very different physiological conditions, extremely limited resources and logistical limitations. USS is the sole imaging modality available and thus is extremely important in many instances to either diagnose or rule out serious medical emergency.

The ideal USS:

1. Small, compact, light weight
2. Versatile transducer (all-in-one)
3. Big enough buttons or touch screens for gloved hands
4. Durability against constant impacts, wet and cold environments
5. Adequate and quick battery charging
6. Internal storage capacity for uploading later

Common medical conditions: acute mountain sickness, high altitude pulmonary edema, high altitude cerebral edema, trauma, infectious conditions involving the respiratory and GI systems.

The next lecture (and the last of 2024) is on Monday 2nd December by Dr Lewis McLean.

For recordings of previous presentations, please visit our Youtube channel: https://www.youtube.com/@PEARLS_POCUS

ID cases from around the world



This segment features cases contributed by ID specialists Dr Tom Heller and Dr Francesco Taccari.

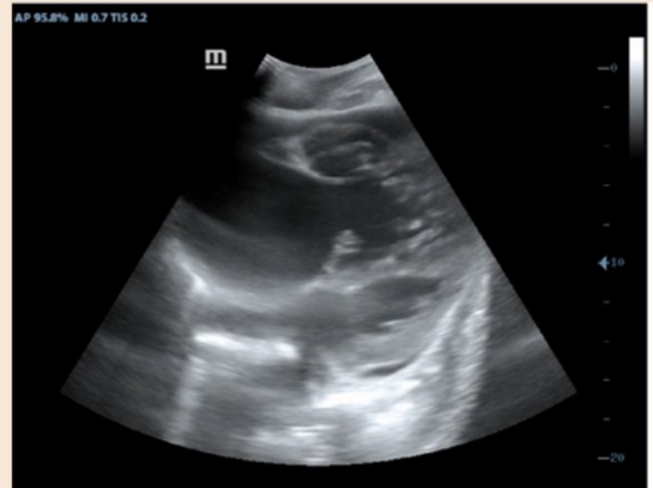
A 33-year-old HIV-positive female patient with suppressed viral load and a CD4 count of 247 cells/mm³ was seen in the clinic in Malawi. The patient had been treated three times for Pulmonary TB (six years ago, three years ago and a year ago). She looked cachectic, coughed chronically but stable and complaint of large amounts of sputum. Her physical exam revealed reduced breath sounds on the left lung, and crackles on the right lung, mild abdominal swelling and leg edema. An ultrasound of the chest and heart was performed.

Question 1: What do you think could be the most likely cardiac diagnosis (see the video clip for better assessment of the motion)?

- a) TB pericarditis
- b) Drug-induced cardiomyopathy
- c) Chronic cor pulmonale
- d) Rheumatic heart disease
- e) Left ventricular hypertrophy

Question 2: What is the most likely cause of the problem?

- a) Disseminated TB
- b) Multi-drug resistant TB
- c) Previous infection with streptococci
- d) Renal problems causing hypertension
- e) Post-tuberculosis lung disease



USS of the heart



You can view the clip by clicking the following link (you will need to log into Gmail) or scan with QR code below:
https://drive.google.com/file/d/1pagNnMUQ6zNZrnKJTnUFzRjLhiavK02u/view?usp=share_link

(Answers on page 9)



Upcoming Events & Developments

Upcoming PEARLS Workshops

- **Nov 18-22 2024:** Inaugural PEARLS workshops in Apia, Samoa
- **March 2025:** Provisional dates for East New Britain, PNG

Other upcoming events

- **22nd-23rd Nov:** Dr Matt Born is presenting virtually at the WINFOCUS World Congress 2024 on the topic of “POCUS for abdo pain in resource-limited settings”.





Answers:

The correct answers are (c) and (e).

The clip shows a massively enlarged right ventricle suggesting right heart strain – “cor pulmonale”. As the wall of the right ventricle is also very thick and muscular, the condition is likely chronic, having given the muscle time to grow and adapt. The right ventricular wall is usually not compact as the left – you can easily see the trabecular pattern in the clip.

The history of repetitive TB treatment as well as the chest X-ray (image) suggests post-tuberculosis lung disease (PTLD, also call TB destroyed lung -TDL) as the most likely cause of the respiratory symptoms and the increase pressure in the pulmonary circulation. Unfortunately, despite the successes of TB treatment, there is a high burden of residual pulmonary morbidity and mortality among TB survivors with significantly higher mortality rates.



A study in Malawi (1) found chronic lung disease in 88% of CT thorax in TB retreatment cases, including bronchiectasis (61%), COPD (22%), and destroyed lung (19%). Prevalence of TB drug resistance was much lower (9.6%). In Korean patients with PTLD elevated mean pulmonary artery pressure (50 ± 24 mmHg vs. normal 15-25 mmHg) and frequent pulmonary hypertension (70%) was seen in echocardiography (2). Patients with PTLD frequently have bacterial exacerbations and require antibiotics. These exacerbations of PTLD are often (and often erroneously) re-treated with empiric treatment for “recurrent tuberculosis”. Our patient improved with antibiotic treatment, chest physiotherapy and low-dose diuretic.

1) Cohen, Danielle B., et al. “Poor outcomes in recurrent tuberculosis: More than just drug resistance?” *PLoS One* 14.5 (2019): e0215855.

2) Jo, Yong Suk, et al. “Risk factors for pulmonary arterial hypertension in patients with tuberculosis-destroyed lungs and their clinical characteristics compared with patients with chronic obstructive pulmonary disease.” *International journal of chronic obstructive pulmonary disease* (2017): 2433-2443.



Contact us

General enquiries:

pearls.enquiries@gmail.com

Monthly Lecture series and Image review sessions:

pearls.lectureseries@gmail.com

Coach coordinator:

pearls.coaches@gmail.com

Youtube: www.youtube.com/@PEARLS_POCUS

X: www.twitter.com/PEARLS_POCUS

Website: Coming soon!

Newsletter team

Editors:

Dr Jono Henry

Long Nguyen

Contents and design:

Dr Ivan Chan

Dr Tom Heller

Dr Francesco Taccari

Tipwarrin Namphongmekhin

Janice Soo

Marcus Chan