

PEARLS

POCUS for Emergency and Acute Care
in Resource-Limited Settings

Welcome to our Monthly Newsletter

Issue 06 | 9th September 2024



PEARLS Botswana x Operation Hernia (left to right): Dr Richard Ssenyonjo, Dr Steven Lindley, Dr Tsasa Sylvain and Dr Tendai Pfidze - August, 2024



REMINDERS

Upcoming:



**Monday 16th September
+7AM GMT**

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



**Monday 7th October
+7AM GMT**

Monthly Lecture series
Dr Mahathar Abd Wahab
Topic: POCUS of Dengue
<https://unimelb.zoom.us/j/1618424483>
PW: 316519

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& developments

Message from Long



Long Nguyen
Medical Student Lead

Hello everyone,

Welcome to another edition of our monthly newsletters!

August was another huge month for PEARLS. We had the opportunity to rapidly coordinate with Dr Steve Lindley, an UGI/Bariatric Surgery Fellow at St George Hospital, Sydney to incorporate a PEARLS-ED teaching course into his trip to Botswana. He graciously shared his experience of how he managed to squeeze in teaching time for 3 physicians amongst 80+ hernia operations over the last few days of August 🤯 - definitely an amazing piece to read!

Our PEARLS sensei, Dr Lewis McLean, led the team once again to deliver a PEARLS-CC course to Fiji, the inaugural in-person workshop in this country. They integrated some cool new techs in their scanning and teaching. Stay tuned for Lewis's sharing in future editions!

Dr Claudiu Radeanu stepped in to deliver our lecture this month to a large crew of attendees on Lung Ultrasound. It was great to see engagement from the audience which helped ensure everyone could get the most from this interactive learning opportunity. We viewed examples of Acute Lung Injury, lung empyema, lobar pneumonia, pleural effusion, etc. There is so much we could do with USS to assess lung pathologies!

Please take time to read a special post in 'Community Corner' on page 6, featuring Dr Donna Piamnok from the PNG. It would be incredible to have everyone's support.

Last but not least, we are announcing the awards for top scanners and top QA reviewers of this year in our final newsletter edition in November. Please make sure you finalize and upload all of your scans and remind your coaches to review them! 🙌

Have fun scanning!

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 Fundraising team - sponsorships and grant applications**
- **PEARLS Tech Support team - troubleshooting probe, device, cloud, connectivity etc. issues**
- *PEARLS Country Leads & Local Leads - spots open for senior leads and junior partners in multiple countries*
- *PEARLS Remote Coaches*
- *PEARLS Cloud Coordination team - supporting Dr Ivan Chan*
- *PEARLS Lecture Series - speaker recruitment and coordination - partnered with medical student*

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 IS EXTENDING BEYOND
THE PACIFIC ISLANDS AND
DELIVER THE FIRST PEARLS-ED
COURSE IN BOTSWANA, PLUS
THE FIRST PEARLS-CC COURSE
IN FIJI.



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**



PEARLS IN NUMBERS

Dr Ivan Chan - PEARLS Cloud Coordinator and PEARLS Research team



89

Clinicians Trained

26

QA image reviewers on cloud

28

Clinicians who've travelled to teach PEARLS

36 + 6

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

703

Total studies uploaded to cloud

10

In-person workshops across 5 countries (6 PEARLS-ED, 4 PEARLS-CC): Vanuatu, Tonga, PNG, Fiji, Botswana



Top 5 learners

Ranked by the number of successfully QA-ed uploads in the previous month.

1 - Dr Vega Kauh



2 - Dr Ellison Manegehe



3 - Dr Tabutoa Eria



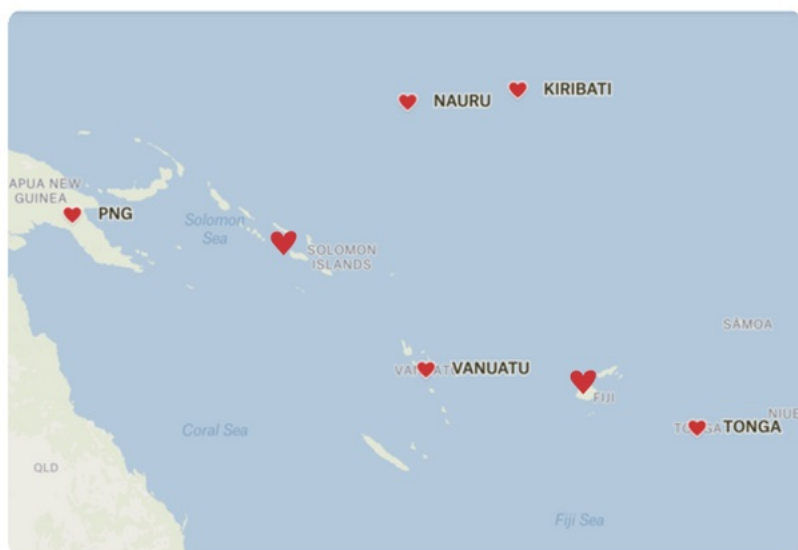
4 - Dr Lawrence Boe



5 - Dr Josefa Tama Tokon



Fantastic scanning everyone - awesome to see our original cohort of Vanuatu dominate this month! Keep up the great work and we look forward to reviewing more scans this month 🙌



11

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

21

Number of educational videos on Youtube channel

333

Number of social media followers including Twitter, Youtube

PEARLS Botswana x Operation Hernia

PEARLS's first reach into Africa began in earnest, off the back of an opportunity to host a PEARLS-ED course during a week-long hernia campaign run by Dr Steve Lindley on behalf of Operation Hernia.

Steve was leading his 5th hernia campaign in total, but it was his first to Botswana, a small landlocked nation in Southern Africa, population 2.4 million. Having had basic training as an ED registrar in Melbourne in 2014, Steve has continued to develop USS skills in the form of vascular access, FAST scan as general surgeon and ATLS instructor/director, as well as learning how to perform intraoperative ultrasound when operating on the gallbladder and bile ducts. Steve upskilled and oriented himself to the PEARLS-ED curriculum and began fundraising for a nearly-new Butterfly IQ+ probe, purchased from an Australian colleague.

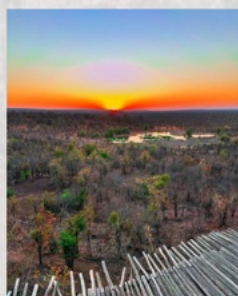
With help from Kanye Adventist Hospital's very engaged CEO Dr Brendan Tombs, 3 experienced medical officers who work across ED, gynaecology, medical and surgical services were selected from a larger pool of very enthusiastic potential learners. Dr Richard Ssenyonjo, Dr Tendai Pfidze and Dr Tsasa Sylvain had all prepared thoroughly for the course with reading and completion of online modules.

The competing interest of the Operation Hernia mission meant that the PEARLS-ED schedule had to be flexible – something each learner appreciated. Time was set aside between operative cases in the afternoon/evenings to cover each seminar and practical learning. The programme was covered over 4 days, giving opportunity for exploration of potential clinically application of POCUS for their inpatients during the span of the course.

It became apparent that procedural tasks such as vascular access, bladder aspiration, FAST, assessment of ascites, suspected ectopic pregnancy and retained products of conception were going to be the ultimate ambition of their practice.



Dr Tendai Pfidze, Dr Richard Ssenyonjo and Dr Tsasa Sylvain



PEARLS Botswana x Operation Hernia (left to right): Dr Richard Ssenyonjo, Dr Steven Lindley, Dr Tsasa Sylvain and Dr Tendai Pfidze

Kanye Hospital assesses plenty of trauma, in a system which has no formal tiered management of trauma. Furthermore, the hospital has not employed a general surgeon for several years, and unlike many African healthcare settings, non-specialised medical officers in rural hospital are not accredited to perform general surgical procedures, regardless of their level of experience. The same officers do perform emergency gynaecological operations and caesarean sections. Not infrequently, a clinical conundrum presents itself when a female patient is taken to theatre, expecting to find gynaecological pathology, where in fact a surgical diagnosis is apparent. The use of POCUS will add a wealth of information to help address these common diagnostic dilemmas and improve timely patient care, as well as help make invasive practices such as culdocentesis or diagnostic peritoneal lavage obsolete.

Each learner successfully submitted their OSCE FAST uploads, including of a patient with ascites. They each went on to achieve good post-course MCQ results also.

Ongoing coaching will be provided by Dr Luke Nottingham, an experienced consultant anaesthetist with a breath of ultrasound experience, and a member of the inaugural PNG PEARLS faculty from 2023. We all look forward to observing the learning journey of Drs Ssenyonjo, Pfidze and Sylvain!

Steve has raised \$2000 AUD as he prepares for the Sydney Marathon. The money was spent on the nearly-new Butterfly IQ+ probe. Kanye Hospital was generous in matching the donation by purchasing a 10th edition iPad Air.

Steve plans to return to Botswana in 2025 to lead the next annual Operation Hernia trip – dates yet to be confirmed – and he wants to start now to build an international team of PEARLS faculty to join him. PEARLS courses potentially could be delivered in the same week he is operating, or alternatively in the week before/after. If interested contact pearls.enquiries@gmail.com

Dr Steven Lindley



To support



Lifesaving surgery for Donna

Dr Donna Piamnok, a dedicated member of our PEARLS community and our first ever PEARLS remote learner, was recently diagnosed with breast cancer. Donna is currently receiving chemotherapy treatment in Wewak, East Sepik. Her friends and colleagues are fundraising for her surgical treatment. If anyone in our community has the capacity to support, please do so at her GoFundMe page below.

“Bron and Angie from Pacific Emergency Education are asking for assistance in raising the cost of life saving surgery for our friend and colleague Dr Donna Piamnok, an emergency care clinician from Papua New Guinea.

Donna has worked tirelessly for many years to advocate for best practice emergency care for all of her patients in Papua New Guinea, particularly including those in remote communities. We have seen her spend the night driving around pharmacies trying to access medication for a patient having a heart attack, then still be on the outreach clinic bus at 7am, travelling to offer her skills to patients who live too rurally to otherwise access medical treatment. She has risked losing her job to speak out about the lack of basic medication available to hospital clinicians in Papua New Guinea, and has been a ferocious advocate for women and marginalised patients as well as a strong supporter for her nursing colleagues. Last year her work was recognised by The Australasian College of Emergency Medicine (ACEM).

Now it is Donna who needs to access specialist care. She is currently receiving chemotherapy in Wewak, Papua New Guinea but after this will require complex

surgery to definitively prevent a recurrence of her cancer. Due to the many challenges within the Papuan healthcare system, her surgeon is unable to safely undertake this operation in a public hospital, and she needs to have the surgery performed privately at the Pacific International Hospital in Port Moresby.

We hope you will join us in supporting Donna to receive this life-saving treatment. Ideally, the funding goal will be met by November 2024 so that Donna can finish chemotherapy knowing that planned surgery will follow.

Donna's patients and community in Papua New Guinea need the skills and passionate advocacy that she brings to her medical practice, and her many friends and family know that the world is a much richer place with Donna in it. Please lend your support to accessing this life-saving care for someone who has cared for so many other people.

All funds raised will be used for the cost of surgery at the Pacific International Hospital and post operative rehabilitation.

Small donations add up to wonderful things when they are shared amongst a community, so please share this page with your family and friends.”

<https://www.gofundme.com/f/lifesaving-surgery-for-doctor-donna>

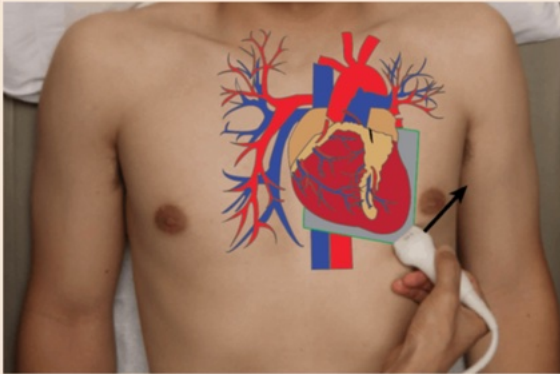
We wish Donna all the best with her medical treatment and we send her and her family all our love.



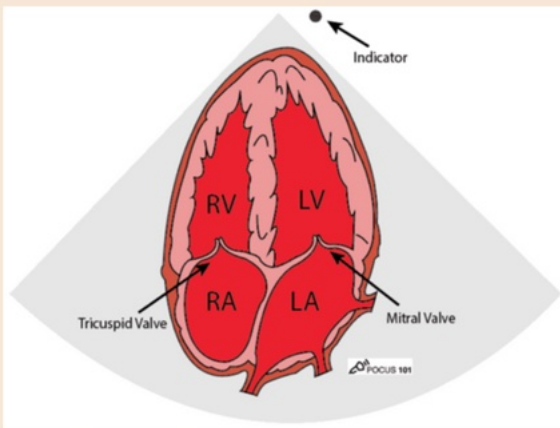


Tips of the month:

Apical 4 Chamber View



Hand and Probe position for the Apical 4 Chamber View



Apical 4 Chamber (A4C) View Illustration

Reference: https://www.pocus101.com/cardiac-ultrasound-echocardiography-made-easy-step-by-step-guide/#Step_3_Apical_Views

Step 1

From the Parasternal Short Axis View, slide the Transducer towards the apex of the heart keeping the indicator pointed towards the patient's left side

Step 2

Once you reach the apex of the heart, as indicated by the left ventricle decreasing in size, tilt the tail of the probe down towards the patient's foot. You should achieve the view as seen on the bottom left. Find inferior-most ribspace where a view is achieved - the LV should appear long and bullet-shaped rather than globular.

Apical 5 Chamber View

From the Apical 4 Chamber view, slightly tilt the tail of your probe towards the patient's feet. Often the difference between the two views is just a 1 or 2 degree tilt!

Coronary Sinus View

A common view produced by novice sonographers is the Coronary Sinus View. Fix it by tilting your probe tail slightly towards the patient's feet and it should give you the apical 4 chamber view

TIPS:

When possible, place the patient supine in left lateral, with the L arm tucked behind their head to open up the ribspace. A4C is often the hardest view to obtain - don't get discouraged - persist & practice!

Monthly Image Review session

Monthly Image Review sessions are held on the **third** Monday of each month at +7AM GMT.

August was hosted by Dr Jono Henry & Janice Soo, where a remarkable case of large pericardial effusion was presented. PNG physician Dr Timothy Openg scanned a young male with a month of fevers, weight loss, dyspnoea and orthopnoea. BP was 90/60, HR of 110.

Freeze-frames from the uploaded video clips are posted to the right. Note the stranding within the pericardial effusion - seen more clearer in the moving video clip, where the strands waft and wave with cardiac motion. In a setting with high TB prevalence and typical symptoms, this is highly suggestive of TB pericarditis.

Disclaimer: Case presented with the permission of the scanner/doctor, solely for the purpose of education in our internal newsletters.

Image 1. Standard subcostal view

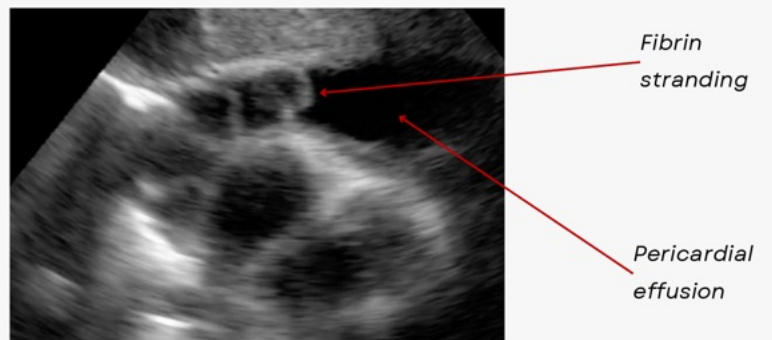
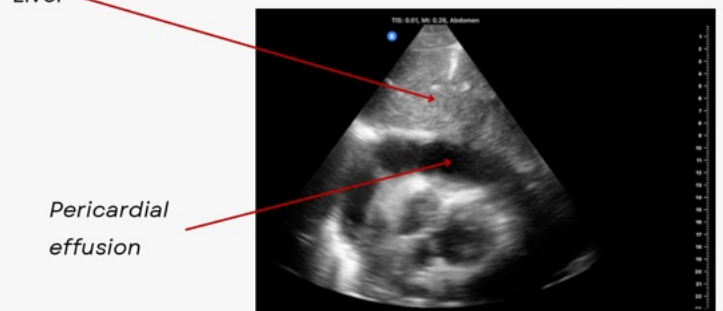


Image 2. Zoomed subcostal view

ID cases from around the world

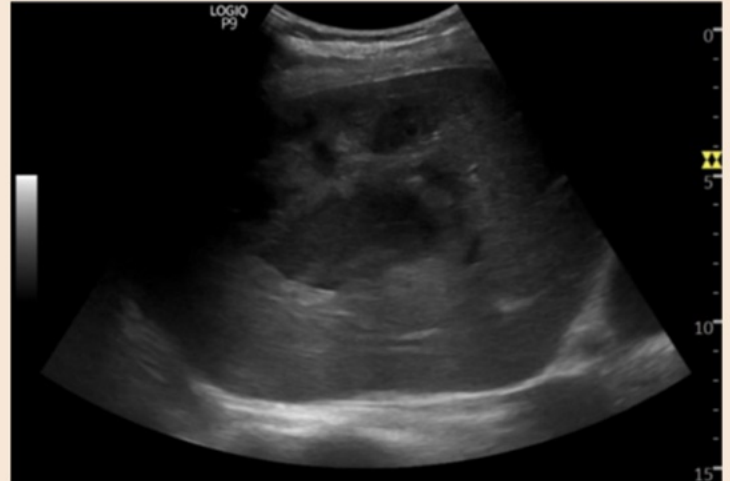


This segment features cases contributed by ID specialists Dr Tom Heller and Dr Francesco Taccari.

45-year-old Indonesian man with a background of hypertension and diabetes mellitus type II was seen for a one-week history of fever, shivering and abdominal pain. He has not been in Indonesia for the past 5 years and lives and works in Europe. Imaging Abdomen revealed a lesion in the right lobe.

Question 1: What do you think could be the most likely ultrasound diagnosis?

- a) liver cyst
- b) liver abscess
- c) large echinococcal cyst
- d) necrotic liver metastasis
- e) hematoma, partially coagulated



Right lobe of the liver

Question 2: What do you think would be the most likely diagnosis if it is a bacterial abscess?

- a) Mycobacterium tuberculosis
- b) Staphylococcus aureus
- c) Klebsiella pneumonia
- d) Streptococcus pyogenes

Answers on Page 9.



You can view the clip by clicking the following link below (you will need to log into Gmail) or scan with QR code:
https://drive.google.com/file/d/1CSlecID30oNRXX5eEkh7nnowF3VpN5rW/view?usp=share_link



T@g an expert

To maximise the wealth of expertise and knowledge within the organisation, we are running the “T@g an expert” initiative! For difficult scans, both learners and faculty can T@g one of our experts in an image comment for their opinions and advice as per below. Due to technical difficulties yet to be resolved by Butterfly, the names of some faculty are not yet included here.

Faculty who’d like to make modifications/additions to this list, please email pearls.enquiries@gmail.com

Name	Happy to be tagged in
@Jonathan Henry	Echo, E-FAST, AAA, bowel
@Katie Newman	Anything except echo
@Jo McCann	Anything except echo
@Lewis McLean	Echo, lung
@Gabriela King	Anything
@Matt Born	Anything
@Ant Allso	Anything
@Darsim Haji	Echo, lung
@Sam Orde	Echo, lung

Upcoming Events & Developments



PEARLS Workshops

- **Oct 4th & 8th 2024:** PEARLS workshops for Nepal NEMPHE Conference 2024 in Kathmandu, led by Dr Matt Born
- **Nov 6-13 2024:** First in-person PEARLS workshops in Honiara, Solomon Islands
- **Nov 18-22 2024:** PEARLS Samoa
- **Nov 26-27 2024:** We're hoping to hold a PEARLS refresher course around the PMA conference in Christchurch - if travelling, make sure to bring your probe!

Other updates

- **Sept 14th:** Dr Jono Henry is presenting on 'Rural Ultrasound Training - lessons from the PEARLS global health project' at ACEM's Victorial Annual Conference 2024
<https://acemvicconference.arinex.one>
- **Nov 22nd-23rd:** Dr Matt Born is presenting virtually at the WINFOCUS World Congress 2024 on the topic of "POCUS for abdo pain in resource-limited settings".



External events:

Oct 14-18th 2024: Bali Emergency Care Conference. Applicable for medical CPD points, up to 26 PD hours! Ticket registration associated with discounted accomodation. Ticket discounts available upon further enquiry with the EMS Conferences team.

Register here: <https://emsconferences.com.au/events/soak-up-the-sun-in-bali/>



PMA Scholarships

Dr Sitaleki Finau Scholarship - \$10,000 will be awarded to one Indigenous Pacific medical trainee sub-specialising in Public Health with an interest in Pasifika community-led research yielding convincing evidence to implement a public health project.



The Sir Terepai Tuamure Maoate International Study Award - \$20,000 will be awarded to one Indigenous Pacific-based Doctor or Nurse that has been enrolled and accepted into a course at an international institution for study.

Dr Joe Williams Scholarship and Dr Robert Woonton Scholarship- Each scholarship will award \$10,000 to one Indigenous Pacific medical training in their first or second year of specialist training.

For more information and to apply, please visit:

<https://pmamembership.org.nz/scholarships>



ID cases from around the world (cont.)



Answers:

The correct answers are 1 (b) and 2 (c).

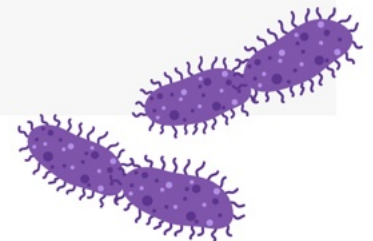
This ultrasound shows a large (8-10 cm) lesion in the right liver lobe, which is largely hypo- to anechoic and has some septations. Considering the clinical picture a liver abscess is the most likely diagnosis. A necrotic liver tumor could be an alternative diagnosis, but again it would have a different clinical picture and in metastasis you would likely see multiple lesions. A hematoma is possible, but the clinical history and presentation makes this diagnosis less likely. A liver cyst usually has a sharper border and is more round.

Under ultrasound guidance a pigtail drain was inserted, which drained pus (not typical anchovie sauce as seen in amoebic abscesses). Blood cultures and abscess cultures grew: *Klebsiella pneumoniae* (not very resistant).

Klebsiella pneumoniae is a well-recognized pathogen causing liver abscesses. Hypermucoid strains with a robust capsule are usually seen. The patients often have underlying diabetes mellitus and are of Asian descent although we also see it in African and Caucasian patients.

Reading tip:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6167513/?report=classic>



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X: www.twitter.com/PEARLS_POCUS

Website: Coming soon!

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