

APSA Education

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Thank you for the opportunity to present this information.

I wasn't planning on rehashing all of my personal background and experience with the topic of APSA & Education in this brief presentation, although I'm happy to answer any questions about it or provide more information.

In 10 Minutes?

1. Your assessment of APSA's current educational offerings (**strengths and weaknesses**)
2. Your personal assessment of our **current gaps** in educational programming
3. Your **tentative plans** for embarking on your mission in this leadership position (subject to reasonable individual interpretation owing to the novelty of this role)
 - 1st 90 days
 - 1st year
 - Long term
4. Some research into how **other medical organizations** have utilized an education chair
5. How APSA education will need to change going forward as it relates to **technology**
6. How our organization can **create appealing educational offerings for all its members** (trainees, advanced care providers, and surgeons at all experience levels)
7. How our reach may extend **globally**

So, this was the assignment for today – address the following seven issues in 10 minutes. Obviously that's not possible. Therefore, I will attempt to cover as many of these topics as I can, but a more detailed PDF version will or has been made available.

1. Current Educational Offerings

- ❖ Annual Meeting
- ❖ pedsurglibrary.com + Unbound
 - NAT
 - ExPERT
 - Handbooks (CA Comm-4, Fetal-15, CC-1, etc)
 - QI Toolkits (n=27)
- ❖ Videos - Youtube, APSA TV
- ❖ [Subscription](#)
- ❖ Committees
 - Education Comm & Subcommittees
 - AOIs (n=11 sources, comm schedules)
 - VA
 - Reviews (Outcomes Comm +)
 - Newsletters/Position Papers
- ❖ SOAPPS (n=9)
- ❖ Patient & Parent Education (n=111)

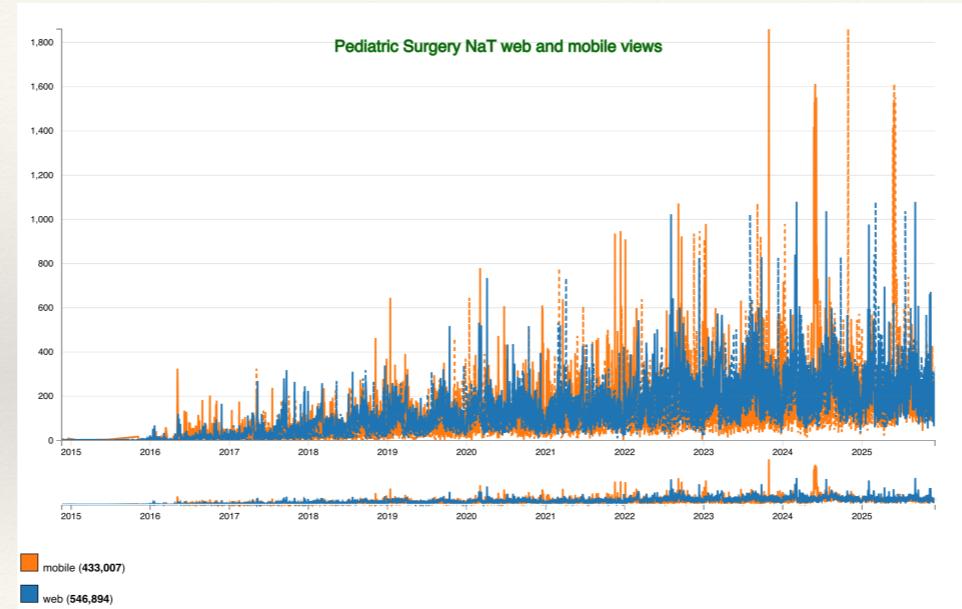
APSA really has a plethora of educational offerings. Some of the major ones are listed here. Items in blue are fee-based or subscription. In parentheses you can see that some of the categories have a surprising number of entries (e.g., parent and patient education).

1. Current Educational Offerings - other

- ❖ Journals
- ❖ Textbooks
- ❖ SCORE
- ❖ ABS - CC

APSA is not the direct provider of all educational sources for pediatric surgeons, but is directly or indirectly involved with many of these extra-organizational sources.

NaT and ExPERT are widely used -> NaT: 9,000 to 14,000 total views per month

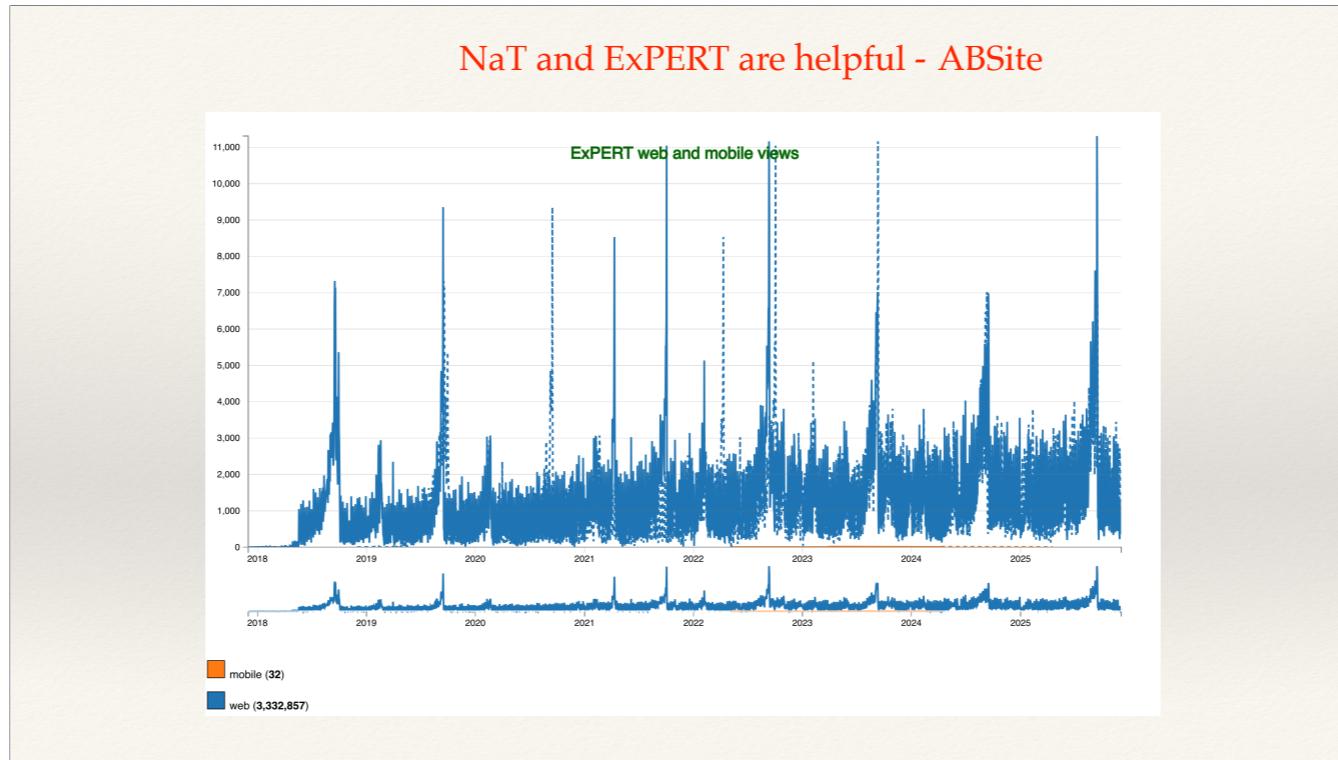


Obviously, the annual meeting, the NaT, and ExPERT are the major APSA educational venues. This graphic tracks the viewership trends for Pediatric Surgery NaT across two platforms—Web and Mobile—over a ten-year period from roughly 2015 to early 2025. Web is slightly predominant.

Web (Blue): 546,894 total views.

Mobile (Orange): 433,007 total views.

In the most recent period shown (late 2024 to early 2025), the platform receives approximately 9,000 to 14,000 total views per month. Usage has steadily increased over time, and remained relatively constant in the past couple of years.



This graph tracks the viewership usage for the "ExPERT" resource over a seven-year period. There is a near-total dominance of web traffic compared to mobile traffic for ExPERT.

The pattern is interesting with "Heartbeat" spikes: massive, periodic surges in traffic. These spikes occur regularly suggesting the resource is tied to a recurring event. The traffic begins to ramp up in late December, skyrockets in January, peaks in late January, and drops off sharply by mid-February.

Click

These spikes almost certainly correspond to the American Board of Surgery In-Training Examination (ABSITE).

There have been a total of 3.3 million views (bottom left)

2. Assessment

Good

APSA provides a LOT of educational information!

A LOT

Quality - Top tier

Price - Largely free, reasonable, scaled

Widely used

Problems

Organization

- Hard to find
- No schema
- Duplication
- Disparate locations

Members often **unaware** of many offerings

Currency - UTD?

↑ Alternatives (Gemini, ChatGPT, Claude, Perplexity, Alexa+, etc)

Read the slide

Click

We will try to briefly cover potential solutions to some of the problems

Organization - taxonomy/ontology

Systems



- ❖ NaT-Based
- ❖ MA's Blueprint
- ❖ Others (SCORE, ABS, MESH terms, homegrown)

Others

- Search
- AI-Assisted Search (DP)
- Tags v Folders

What to do with new information that doesn't fit the schema?

How to retrofit the schema to existing body of information?

Will AI fix everything?

Obviously, there are PhD fields devoted to the study of organizing information and data. The picture is of Melvil Dewey, inventor of the Dewey decimal system. Over time, various organizational schemas for APSA's educational material have been proposed and attempted, including ones based on the content of the NAT, a more thorough system developed by Marge Arca during her tenure with the ABS (blueprint), and many other possible taxonomies such as SCORE-based, MESH term-based and others. With the advent of AI and advanced searching capabilities, some have suggested that a taxonomy is less necessary, and that the younger generation of physicians is far more likely to simply search for a topic, rather than the old approach of leafing through a textbook to find the appropriate chapter, subheading, and specific passage of interest.

Click

Even if a superb taxonomy is available and used, there are problems (read insert)

Taxonomy: The practice of classification (e.g., the Linnaean taxonomy in biology or a strict folder hierarchy).

Ontology: Defining the relationships between concepts (e.g., "A 'Sparrow' is a type of 'Bird'").

Organization - other possible solutions

I. Improve the Unified Taxonomy:

- ❖ A single search should pull up all APSA information on the topic, categorized
 - ❖ NaT, ExPERT, APSA.TV, Handbooks, QI Toolkit, etc. (it does a little of this now)
- ❖ Software Fix: Requires a single "controlled vocabulary" (like MeSH terms or a custom APSA taxonomy) across all platforms.
- ❖ Map resources directly to the NaT/ABS/SCORE/Blueprint curriculum

II. Filtered Search:

- ❖ Instead of just a search bar, add filters on the results page. Users should be able to filter by Format (Video, Text, Quiz), Audience (Student, Fellow, Attending), or CME Credit (Yes/No). This prevents users from being overwhelmed by diverse results.

I will skip over item # I, since we discussed it briefly on the previous slide.

Item # II bears brief mention -> this is the use of filtered search material, and as a later slide will show, some of the organizations have adopted something similar to this – users can filter their search by format/type, audience, CME credit, brief versus detailed content, source, etc.

Duplication - possible solutions

"COPE" Strategy (Create Once, Publish Everywhere)

Packetize information

Governance and coordination

Unified Taxonomy

Duplication can be a good thing, in the sense that reviewing the same information (preferably in a slightly different format) in different sites or at different times provides reinforcement learning. However, most of the time it is a negative. This is particularly true when, for example, an expert question has an answer that is contradicted by the material in the NaT, or when more recent information from an annual meeting contradicts an outdated NaT or expert item.

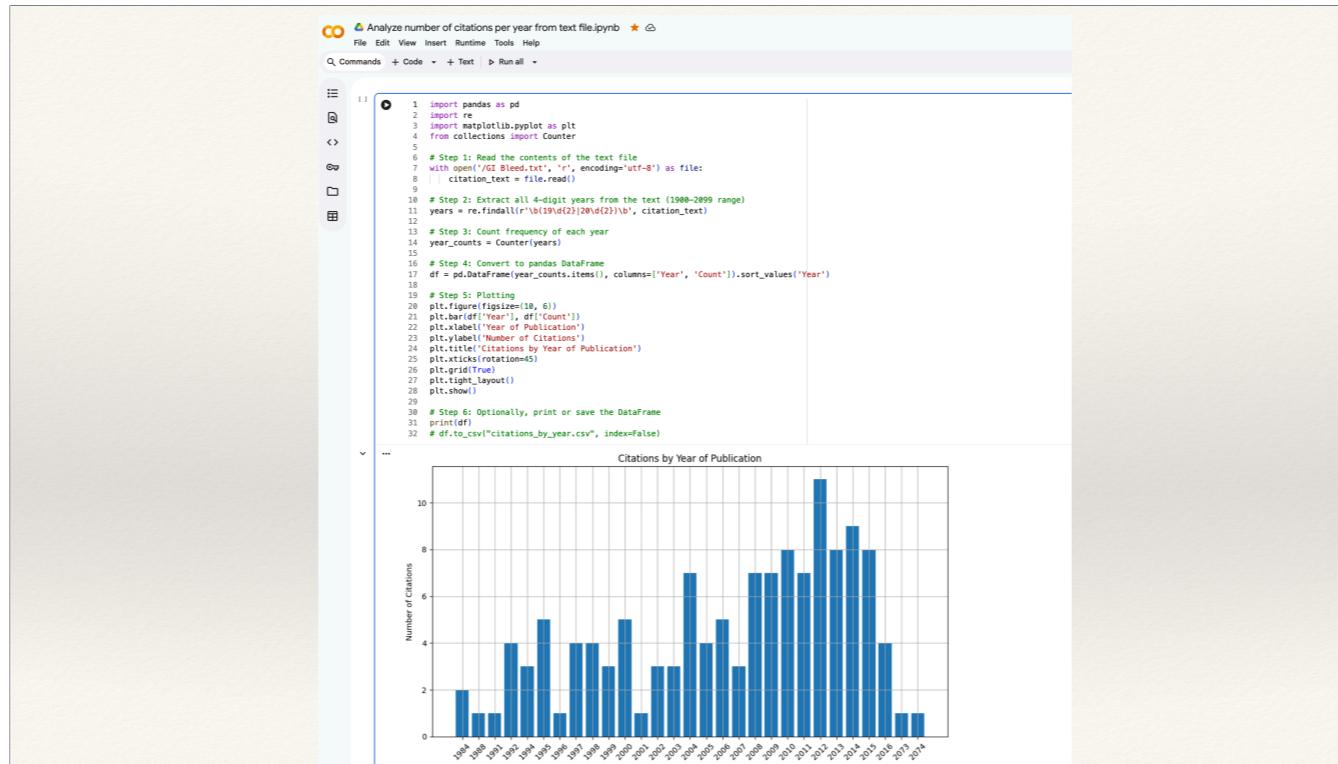
Solutions to this include the items listed here:

COPE

nuggetizing - packets of information that is reused in multiple locations prevent duplication.

*Some duplication simply has to be dealt with, and avoided by, good **governance and coordination** - e.g., seeing that the outcomes committee doesn't review a topic already being reviewed by the trauma committee.*

Taxonomy was previously discussed.



This is an example of a Python program I wrote to help assess how up-to-date an NAT chapter is. You copy the references into a text document, and the program then uses a regex - or regular expression - to extract the year from the date of each reference. A frequency graph or histogram of the references is then created, as shown at the bottom of the illustration. In this case, we can see that almost all of the references are more than 10 years old.

A	B	C	D	E	F	G	H	I	J	K	L
1 Topic	Date Last signif mod										
2 Extracorporeal Life Support	2022-09-19										
3 Metastatic Melanoma Soft Tissue Sarcoma	2022-09-19										
4 Pancreatic Trauma	2022-08-18										
5 Nutrition	2022-08-09										
6 Parapneumonic Effusion Procedures	2022-08-05										
7 Parapneumonic Effusion and Empyema	2022-08-04										
8 Trauma Resuscitation and Initial Evaluation	2022-04-03										
9 Integrative Medicine	2022-03-31										
10 Congenital Diaphragmatic Hernia	2022-03-15										
11 Pectus Carinatum	2021-08-16										
12 Nissen Procedure	2021-08-05										
13 Ravitch Procedure	2021-08-05										
14 Poland Syndrome	2021-07-30										
15 Sternal Cleft	2021-07-30										
16 Thoracic Dystrophy	2021-07-30										
17 Chest Wall Deformities	2021-07-17										
18 Gallbladder Extraction	2021-07-17										
19 Ovarian Torsion	2021-07-02										
20 Hirschsprung Disease	2021-05-20										
21 Intestinal Failure	2021-05-12										
22 Nonhealing Enterocolitis	2021-05-08										
23 Omphalocele	2021-05-08										
24 Cryptorchidism	2021-04-29										
25 Gastroesophageal	2021-04-21										
26 Sacrococcygeal Teratoma	2021-04-22										
27 Sacrococcygeal Teratoma Resection	2021-02-22										
28 Liver and Spleen Transplant	2021-02-22										
29 Esophageal Atresia and Tracheoesophageal Fistula	2021-01-25										
30 Intussusception	2021-01-25										
31 Congenital Tracheal Stenosis	2020-11-10										
32 Circumferential Resection	2020-11-10										
33 Lung Cancer and Tracheal Disorders	2020-11-10										
34 Laryngomalacia	2020-11-10										
35 Laryngotracheoesophageal Cleft	2020-11-10										
36 Subglottic Stenosis	2020-11-10										
37 Esophageal Stress and Tracheoesophageal Fistula Repair	2020-09-25										
38 Eye and Retinal Abnormalities	2020-07-31										
39 Total Colon Aganglionosis	2020-07-16										
40 Colostomy for Hirschsprung Disease	2020-03-12										
41 Myectomy for Hirschsprung Disease	2020-03-12										
42 En bloc Resection for Hirschsprung Disease	2020-03-12										
43 Congenital Twists	2019-12-26										
44 Long Bone Fractures	2019-12-19										
45 Congenital Diaphragmatic Hernia Repair	2019-12-02										
46 Intestinal Pseudoobstruction	2019-10-22										
47 Gastroesophageal Obstruction	2019-10-22										
48 Obesity and Bariatric Surgery	2019-04-24										
49 Chemo- and Radiation Therapy	2019-04-12										
50 Central Venous Stenosis	2019-03-22										
51 Common Vascular Variants	2019-03-22										
52 Endothelial Lesions	2019-03-22										
53 Lymphedema	2019-03-22										
54 Venous Thromboembolism	2019-03-22										
55 Arterial Thrombosis	2019-03-21										
56 Mildortic Syndrome	2019-03-21										
57 Blood-clotting Abnormalities	2019-03-21										

The unbound system conveniently maintains '**update histories**' for all the sections and chapters of the NAT and some of the other material. Problem solved! However, although the system records the date of last modification automatically, it does not, unfortunately, 'know' whether that change was correction of a spelling error/addition of link to the annual meeting, or a total re-write of the material. It is necessary to review each 'history' entry (perhaps $n=30+$) for each article (as above) to determine when the last real revision was. Even then, it is often unclear. A couple of years ago, I went through the entire history of each NAT chapter/section/entry item by item and created a spreadsheet (screenshot of the Excel file shown) with my best guess as to when each section had been updated.

Currency solutions

NaT

Editions like a textbook? (DP not a fan)

NaT vs. ExPERT*

Schedule of revisions

- Committees?
- Old 'system' - n=3 (😢)

*Part of the *raison d'être* for the PDC

Metadata field for true revision

Making certain everything is up-to-date is obviously important. It would be preferable to have 500 items that were current and of high-quality versus 2500 items that are dated, inaccurate, and contradictory.

One suggestion for the NaT was to treat it like a printed textbook, with a first edition, 2nd edition, etc. However, the original idea was to create a "living document" and having editions of the NaT was somewhat contrary to that ideal.

Some of the APSA committees (content experts) have updated their portions of the NAT, but not all sections/topics have an associated committee. Additionally, as with all groups, getting all the committee members (full time surgeons with families) to do quality revisions of all aspects of their topic in a timely fashion is often problematic. In addition, members rotate off and on the committees, adding to inconsistency and difficulty.

Currency - potential solutions

Governance problem, not a software problem. You need a human workflow to ensure freshness.

- Implement "Lifecycle Governance":
- Assign a "Review Date" metadata field to every piece of content (e.g., 3 years from publication).
- When the date hits, the content owner gets an automated alert: Update, Archive, or Verify. If they do nothing, the content is automatically flagged as "Potentially Outdated" or hidden.

Sunsetting Policy:

- Be aggressive about deleting (or archiving) old content. A smaller library of 500 current articles is infinitely more valuable than a library of 5,000 articles where half are from 2015.

Here are some other answers to currency problems: making sure there is a review date (automated?) and a sunsetting policy all guided by scheduled human review.

↑ Awareness

- ❖ Personalized 'push' notifications (tied to expertise/interest) - can be annoying
- ❖ Annual mtg 'course' on educational offerings
- ❖ Better integration with mobile app
- ❖ Better curriculum integration
- ❖ Podcast(s)?
- ❖ **What have others done?**

Another issue we were asked to address is how to increase the awareness of APSA's educational offerings, and there are several possible options. These include personalized push notifications tied to individual's area of expertise or interests - if a cancer committee member was notified when there are oncology-related additions to APSA.tv or YouTube videos (perhaps from the annual meeting), or when there are new ExPERT questions on oncology, or when there are changes in the cancer content of NAT, etc.

Another option would be having an annual course at the APSA meeting (just like the ultrasound course) - where the current educational offerings are reviewed along with how to access them.

As discussed, other options include better integration with the mobile app and better vertical and horizontal integration.

Another organization has an educational podcast on a regular basis - that would be another option - we'll discuss what others have done later on.

3. Comparison

Organization	Primary Educational "Product"	Surgeon Leadership Role	Staff Leadership Role
APSA (Pediatric)	ped surg library.com (NaT, ExPERT)	Chair, Education Committee	Executive Director / Staff Team
SVS (Vascular)	VESAP (Self-Assessment)	Chair, Education Council	Director of Education & Prof. Dev.
ASCRS (Colorectal)	CARSEP & ASCRS U	Chair, Cont. Education Committee	Education Staff Managers
ASPS (Plastics)	EdNet & REC	Chair, Education Council	VP of Education & Development
ASTS (Transplant)	Academic Universe	Chair, Curriculum Comm.	Director of Training & Certification

We were also asked to compare the various educational offerings from other surgical subspecialties listed here are the society for vascular surgery, the colon rectal surgery society, plastic surgery, and transplant surgery - along with their primary educational products, who runs their educational offerings, and the nature of that position. There's not time available to discuss in any detail these various options, but it should be in the printed material that you have.

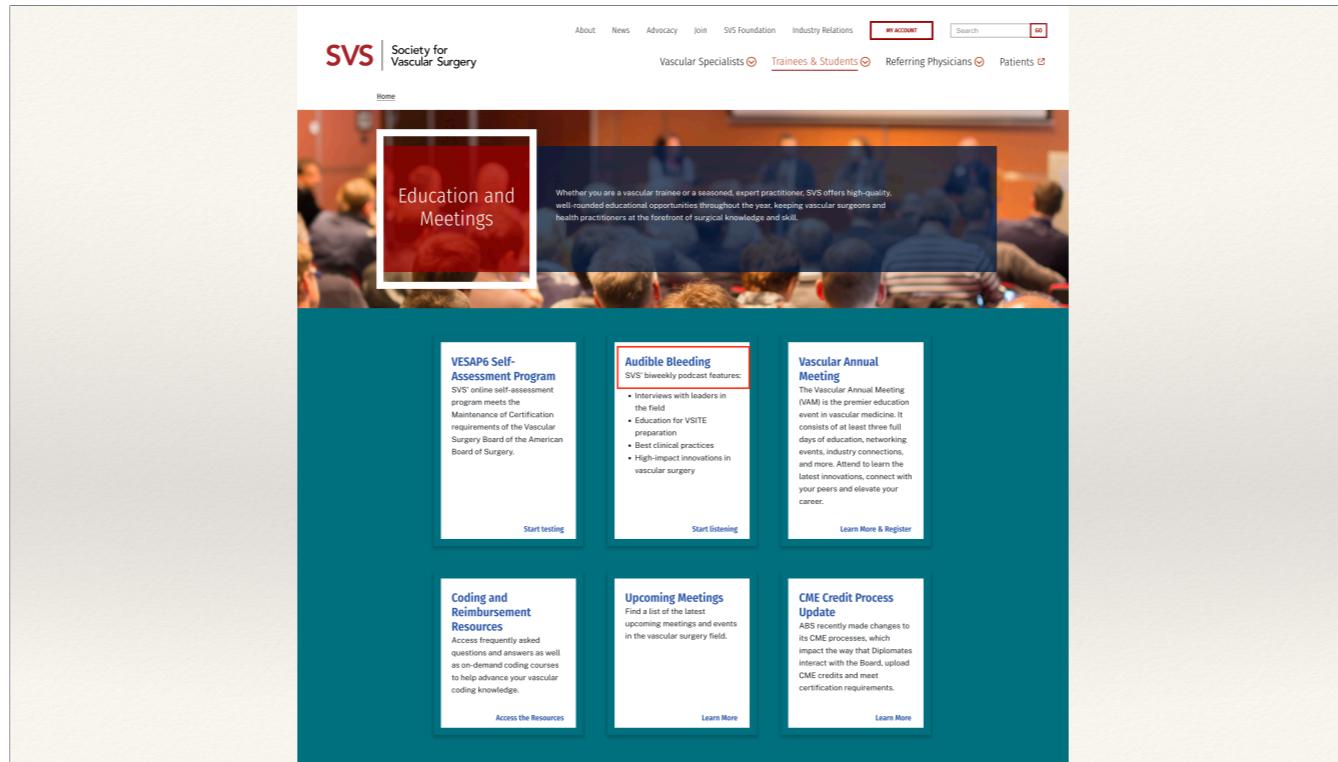
The screenshot shows the ASPS education page. At the top, there's a navigation bar with links for Home, Join, Account, Shop, Education, Publications, Community, Registries, Advocacy, Quality, Health Policy, Resources, a search bar, and a 'MORE' menu. Below the navigation is a banner for the 'PSTM25 ON-DEMAND MEETING PLATFORM'. The main content area is titled 'Education' and features several sections:

- ASPS Spring Meeting**: A call-to-action for the virtual meeting, with 'REGISTER NOW', 'VIEW PROGRAM', and 'EVENT PAGE' buttons.
- EDUCATIONAL HIGHLIGHTS**: A list including 'ASPS Education Network', 'Plastic Surgery The Meeting', 'LIMITLESS Leaders Summit', 'WPS Symposium', and 'Plastic Surgery Coding Workshop'.
- SYMPOSIA AND MEETINGS**: Information about live and virtual meetings.
- ONLINE COURSES**: Information about the ASPS EdNet learning portal.
- ABOUT EDUCATION**: Information about the ASPS educational mission.
- RESIDENTS AND FELLOWS**: Information about resources for residents and fellows.
- SELF-ASSESSMENTS**: Information about the Resident Education Curriculum (REC).
- EDUCATION RESOURCES**: Information about faculty resources and training.
- CONTINUING EDUCATION**: Information about CME activities and disclosure forms.

This is just a screenshot of the American Society of Plastic Surgeons' education page - they have fairly well defined set of options that are easily accessible. There is a highlighted red box around the area on the top right - note the first item listed. This is the ASPS educational network, seen on the next slide

The screenshots demonstrate the user interface of the ASPS Learning Center. The left screenshot shows the main homepage with a search bar, subject filters (Subjects, Course Types, Credit Type), and featured content like 'Looking Back: What I Do Now and What I Have Eliminated from My Facelifts' and 'QUICK HITS CME'. The right screenshot shows the 'Learn in Minutes' section with various SNIPS modules and the 'PRS Journal CME' section with journal articles.

These screenshots demonstrate what happens when you click the prior link. You can filter at the top by subject, course type, & credit type. You can search it and it has categories listed for “learning in minutes”, resident education, CME, quick CME, etc.



This is just another screenshot from the Society of Vascular Surgeons' education page, and again there are links to various things in more detail. Highlighted here with a red box is their biweekly podcast called Audible bleeding, which I'm sure it is quite interesting.

Appeal

High Quality

Current

Reasonable price or free

Easily accessible

Tailored to interests and training

This is not a major problem!

Precision Education

I. Trainees

Simulation

Curriculum integration

II. Practicing Surgeons

Micro-learning

Spaced education

III. SOAPPS

Welcome SOAPPS to the educational tent

IV. Students

Maintain free, high-quality "entry-level" resources

V. Families

Broaden and raise awareness

Don't reinvent the wheel at each hospital

Another topic we were asked to address is how to increase the appeal of the educational offerings, and there is overlap between increasing awareness and increasing the appeal.

Read column 1.

Changes - in response to technology

- ❖ Unbound working on medical AI for platform
- ❖ **Rise of SkyNet**
 - Are written textbooks becoming extinct? Will online follow?
- ❖ Dangers
 - Over-reliance on AI
 - Information overload
 - Maintenance and assessment of technical skills
 - Disinformation and multiplicity of sources (**APSA can be the reliable authority**)
 - Immediate knowledge vs. knowledge base

Unbound is currently working on this topic, and has been for some time. Obviously, the rise of readily available AI has changed the playing field. However, ChatGPT has already taken steps to limit medical consultation, most likely due to concerns about liability, but sooner or later there will be medically focused and highly expert AI. Already, the degree of knowledge Gemini and ChatGPT have about esoteric pediatric surgical content is sometimes stunning although variable in quality. Some of the dangers associated with use or overuse of AI are enumerated here

Are standard textbooks becoming extinct?

*There are clearly dangers ahead, including over-reliance on AI and a loss of one's personal PS knowledge base, information overload, and poor quality information. The more sources there are, the more unreliable many of them become - and that's an opportunity for **APSA to be the reliable authority**. AI isn't going to help with maintenance and assessment of technical skills, at least not in the near future. Lastly, there's an issue of immediate knowledge -> you're in the trauma bay and you need to decide whether to do an ED thoracotomy: you can't depend on your phone to ask what to do. There are certain things that you need to actually have in your head and this will not change in the near future.*

Global extension - complex issue & others in APSA have expertise

Sharing knowledge vs. Medical imperialism

- LMIC partners must define their own needs
- Resource-Adapted Surgery

Maintain bi-directionality: HICs can learn for LICs (e.g., Bogota bag)

Expand Partnerships

Barriers to Reciprocity

Visa issues

Time, distance, and cost

The screenshot shows an email interface with the subject 'Pediatric Surgery Selected Articles'. The body of the email contains a grid of links categorized by surgical specialty: GENERAL, UPPER GI, COLON/RECTAL, THORAX, HEPATOBILIARY, NEONATAL, ONCOLOGY, PLASTICS/BURNS, UROLOGY, HEAD/NECK, TRAUMA/EMERGENCY, and OTHERS. Below the grid, there is a note about sharing the link via email or social media, and a list of names for the journal's editorial board.

How do we expand APSA's global educational reach? This is a deep topic we can only touch upon here. There are a multitude of issues associated with this. We would like to share knowledge with those that need it, but medical imperialism can be problematic. Ways to help deal with this include letting low and middle income partners define their own needs, and then adapt educational assistance to them individually - resource adapted surgery. It's important to maintain bi-directionality: high income countries can learn from low income countries. Examples of this include the Bogota bag or the South American PS monthly Selected articles by area of interest

Click

There are of course barriers, such as visa issues, time, cost, and distance

5. Recommendations

90 days

Goal 1: Content Audit

Action: Execute a complete content audit of NaT, ExPERT, and the PedSurg Resource.

Deliverable: A master spreadsheet containing every asset with metadata: Topic, Date Created, Last Reviewed, Format, and Audience.

Goal 2: Interface & coordinate with Committees (esp. ed, pdc, outcomes). Define "Lanes of Traffic" (Governance Policy)

Action: Create a clear internal policy document defining the unique purpose of each tool to prevent future overlap.

Goal 3: Revitalize / re-establish an active Editorial Board for NaT

Goal 4: Begin to archive or update out of date content

Action: Remove or archive the bottom 10% of content (broken links, guidelines older than 10 years, empty placeholders).

365 days

Goal 1: Update NaT content (nothing older than 3-4 years) - this cannot be completed in 1 year but a process can be developed and much progress made.

Goal 2: Work with unbound to explore improving "APSA Search" with filters

- Video, quiz, nat, tutorial, etc.
- Student, SOAAPs, resident, fellow, staff
- Topics
- CME

Goal 3: Explore Curriculum Mapping (Uniform taxonomy)

Goal 4: Offer a "Push" Notification System

Long Term

Goal 1: Self-sustaining, not person-driven

Goal 2: All major content is up-to-date and maintained on a scheduled and reg. basis

Goal 3: AI-Assisted "Consultant"

Action: Train a secure LLM (Large Language Model) only on the verified APSA NaT/ExPERT dataset.

(RAG)

Goal 4: Precision Education (Adaptive Learning)

Action: Upgrade ExPERT to use adaptive algorithms. If a user consistently misses questions on "Liver Tumors," the system automatically pushes related NaT reading material and re-tests them 2 weeks later.

Here are some suggested goals/'deliverables' with a timeline. I will leave this slide up to read since we are short on time.

Questions
