

#FOAMed

Free Online Meducation and Social Media

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#FOAMED

Free Online MEDucation and social media

1. What is FOAM?

*"If you want to know how we practiced medicine 5 years ago, read a textbook.
If you want to know how we practiced medicine 2 years ago, read a journal.
If you want to know how we practice medicine now, go to a (good) conference.
If you want to know how we will practice medicine in the future,
listen in the hallways and use FOAM."¹*

FOAM is an acronym for Free Open Access Meducation but for those who believe in it it encompasses a whole lot more. Advocates consider it to be a shifting collection of information and resources as well as a community with a common ethos.² While online resources have been around since the Internet became popular, FOAM only got its name in 2012 and that is considered to be the beginning of the movement in its current form. FOAM is a rapidly evolving and expanding collaboration of medical professionals who want to use online resources as part of continuing education as well as make connections and get ideas from a larger community of people of differing interests and hierarchical levels.¹

The concept of FOAM as a collection was necessitated by the extensive and constantly growing number of free online resources in an effort to organise, collect, and share within this expanding community. It is sometimes thought that FOAM is Twitter or social media. It is more than that though. While social media is the platform that assists in collating and disseminating FOAM, the resources of FOAM is more than the social media itself - it includes blogs, podcasts, tweets, Google hangouts, online videos, text documents, photographs, facebook groups, but also it is the individuals that encourage learning and sharing to further medical education.¹

Importantly, FOAM devotees encourage the dissemination of the information through sharing and fine-tuning information to suit the circumstances of those it is aimed at. Ultimately, it is a philosophy of open sharing and collaboration with credit and acknowledgement of the work of others.² Social media and other types of online collaboration are fundamentally changing the way physicians learn and update their knowledge throughout their careers, according to followers of a movement of FOAM.³

Increased use of FOAM over the last ten years is evidenced by the fact that there have been 141 blogs started and 42 podcasts available on the subject of emergency medicine and critical care which have been produced by people in 24 different countries.⁴ Residents from the United States are also reporting their increased use of social media as part of their training. A survey completed this year indicated that 98% of american emergency medicine residents use social media as part of their own learning for at least one hour every week.⁵

2. Where did it all begin?

Chris Nickson from the Life in the Fast Lane blog believes that the concept of medical people sharing knowledge goes back to the the Hippocratic Oath.⁶ *It says,*

"I will teach them my art without reward or agreement; and I will impart all my acquirement, instructions, and whatever I know, to my master's children, as to my own; and likewise to all my pupils, who shall bind and tie themselves by a professional oath".⁷

Irrespective of the aspects of the oath that are criticised, the teaching and sharing of knowledge aspect still continues even now.

In terms of FOAM specifically, the term was only born in 2012. While having a pint of Guinness in a pub in Dublin, waiting to go and speak at the International Conference of Emergency Medicine, Dr Mike Cadogan, the father of FOAM, was said to have coined the term. This was in an attempt to

"define the concept of harnessing the combination of altruistic practitioners with rapidly evolving technology in the setting of increasingly accessible broadband resources to create a network of Free Open Access Medical Education Resources."⁸

He was, in fact, trying to package the concept in a way that would sell it to the medical community. Mike Cadogan claims that this community would run at the very mention of social media and that before this conference, his lectures on the topic drew only five to ten attendees.⁹

From that point the idea has spread rapidly culminating in the first Social Media and Critical Care congress (SMACC) in 2013.¹⁰

3. Why is FOAM useful?

In many ways, FOAM is well suited to adult learning. This is because it is self-directed learning which allows for tailoring to the learner's area of speciality or interest. It is also problem orientated and lets the learner fill in any gaps and deficiencies. For adult learners with complicated shift systems and often unpredictable hours, it has the benefit of being "any time and place" learning as the user can access the material at any time convenient to them. This setup aids rural doctors who are isolated and may not be able to attend more formal teaching sessions. It is well suited to those who consider continuing education to be their own responsibility as is integral to Continuing Medical Education (CME).¹

Another aspect of FOAM that makes it popular is the concept of "just in time learning". One is able to access information at the bedside or refer to the steps of an unfamiliar procedure immediately rather than needing to access a book or library to solve the problem. This can take many forms depending on the clinician's deficit, for example a video of rarely performed procedure may provide the refresher required. This means that a large amount of

information is readily available and the smart phones and tablets with online access have been referred to as a “library in your pocket”.¹

An aspect of FOAM which is often beneficial is the dissemination of tacit knowledge that has been gained from experience and isn't really suited to being published in the literature or found readily in a textbook. This has often been compared to the information you may glean from a colleague in the tearoom or from an expert on a grand round. FOAM and social media gives you access to a large number of people which may have a practical solution they have gained from experience.¹¹ It is also an alternative means to learn about topics which may not appear in the medical curriculum and grapple with real life issues related to professionalism, teamwork, organisational issues and potential ethical dilemmas with a diverse group of people. Some aspects of medicine are difficult to separate from real life complications but they are still an important aspect of our practice.¹²

FOAM through social media encourages sharing of relevant literature and learning materials as well as allowing for discussion and explanation of the relevant concepts disputed or not well understood that this literature covers. The information spread via FOAM can take numerous forms including links to published literature, journal club like reviews of articles, blog summaries of a topic, lectures and procedures on video and expert opinion via podcasts.¹³

It is important to note that FOAM is not meant to be a replacement of the more traditional approaches to medical education. It is rather meant to act as an adjunct to improve the access to this information and to provide alternative ways of teaching certain aspects of medicine. It can be particularly useful when used to facilitate the ‘flipped classroom’ model of teaching. This is the concept of learners accessing the information before the meeting in whichever form including a video of a didactic lecture and then uses the time when everybody meets to discuss and clarify the content covered in advance. This provides an opportunity for peer-group discussion, participation in simulation of cases or other interactive and case based learning at a potentially higher level than only a few questions at the end of a formal talk.¹⁴ This model is used by the Stanford Medical School and those teaching there have found it to be an asset. They found that class attendance greatly increased once this model was introduced from 30% to 80%.¹⁴ Beyond the medical school classroom FOAM provides the opportunity for peer-to-peer networking and discussion amongst post graduate clinicians as well as the opportunity to interact with experts from around the globe.¹⁵

"This is a movement where the hierarchy is flat. There are no leaders; everyone is a leader. A nurse can teach a doctor, a medical student can teach an attending. When it comes to FOAM, quality cannot be stopped from bubbling to the top." Chris Cadagon¹⁶

4. Is the textbook dead?

Many FOAM enthusiasts believe it is, in its most traditional form anyway. The large, heavy textbook that was relegated to a bookshelf with its information outdated before purchase may be a thing of the past. That is not to say that FOAM believers assert that students no longer need need a solid and comprehensive grounding and the most well-known amongst them advocate that students read a relevant textbook ‘cover to cover’ for a specific discipline to ensure good basic knowledge that is broad enough so as not to focus on the fashionable

topics at the expense of potentially duller sections.² Textbooks may need to be adapted to allow for electronic versions with instant updates, continual post-publication review, user interactivity, multimedia integration, and platform independent, cloud based texts which are targeted to local circumstances.¹⁷

5.and what Journal articles?

Perhaps the traditional form of printed journals is in danger too although the research and evidence based medicine itself is definitely not. These journal subscriptions are expensive, often difficult to find, filter and organise according to interest and the specific problems needing a solution. The journal articles of the future need to be free and easy to access as well as curated for ease of use.

One of the pertinent criticisms of FOAM is that the online information does not undergo the peer review process that journal articles require. This is not necessarily the case as FOAM users are encouraged to always provide relevant evidence where possible. Readers also need to be skeptical about unsubstantiated claims.¹⁸ The comments shared in conjunction with the literature should be compared to the editorial found in a journal although the opinions in FOAM can be shared by anyone not only by invitation. Where no evidence is available, the information relayed needs to be considered just as one would the opinion of a colleague in the tea lounge considering their experience in the subject. The articles cited still required the peer review process to be admitted to the journal in which it is published. Social media needs to rather serve as a “advertiser” and a curator of the information.³ This being said, the articles being shared may not be of the highest quality and it is the reader who still needs to be able to critically appraise that read and not only trust the summaries and cliff notes found on social media streams.

Further, the post publication review process is becoming more important with time. FOAM contributors will comment and critique literature put forward in public forums for all to consider and discuss. FOAM opinions and arguments are subjected to free and open debate encouraging a broad base of review unlike the potentially small numbers of reviewers for journal publication.¹⁹ More formally, this sort of discussion on social media forums has even lead to the discovery of statistical errors and corrections of published work.²⁰ Social media and FOAM has an important role making clinicians aware of relevant research and the practical implications of it. This post review process has many benefits but the drawback is that certain papers which are more widely discussed on popular forums receive a more vigorous review than others and it seems that tweets about articles correlate with future citations ²¹ as well as more downloads of the research articles.

"We've actively managed to engage a large group of researchers and significant academics who are moving away from writing textbooks and journal articles to doing more in the online arena," Cadogan said.

"That's lending a sense of credence to what we're doing."¹⁵

6. What are the problems with FOAM?

The lack of peer review process and the promotion of sometimes poor quality studies is not the only criticism of FOAM. A very real concern regarding FOAM is that of information overload. While doctors have faced the difficulty of more information than they can assimilate for many years, with the internet and the proliferation of free online access to education, this is more and more problematic. It is possible to streamline the information received through the judicious use of filters. Further, there are numerous sights and newsletters that attempt to curate and collate the relevant work for particular disciplines. The reader needs to be particular though when choosing which of these to take cognisance of. These collaborations can direct the reader to the relevant or new literature.

At a debate on the topic at SMACC 2014, Scott Weingart said

*“You need to put in the time. You need to read.
You need to understand how to critically appraise new evidence;
how to integrate it into your existing belief structure;
how to then test that based on bedside clinical experience;
based on your understanding of physiology,
based on the specifics of every individual patient.”*

While this has always been true, it is even more relevant in the face of FOAM.²²

As alluded to previously, FOAM does suffer because of the fact that some topics are considered more interesting or controversial than others and so encourage regular postings and discussion. This is seen with a topic like awake fibre-optic intubations which receives regular attention while drier topics like hand washing may be neglected. The mature learner needs to be keenly aware of this inherent drawback and read broadly to fill the gaps appropriately.

There are other practical issues that need to be considered particularly in the South African setting. There is the cost of the technology and internet services, availability of reasonable, fast and always-on broadband as well as a sometimes irregular electricity supply which needs to be considered. This is particularly pertinent in the more remote rural areas of the country. While not much is mentioned on blogs and in the literature on this topic, much of FOAM originated in the United States where this might be less of an issue. The literature does mention the challenges of teaching using technology when a large group with diverse backgrounds is concerned. Even in the rural areas, however, smartphones and tablets are ubiquitous and mobile internet facilities are increasingly available.²³

While not a criticism per se, one of the limitations of FOAM is the ‘cost of free’. FOAM is all about free access to information and those who create the forums are usually doing so using their free time and their own resources to create videos, podcasts and blogs as well as the cost of hosting and website development. One solution adopted by Scott Weingart of EMCrit.org is to continue to provide free access but to urge users to pay and register as part of a program to get CME points.²⁴ Others depend on advertising, charity and the support of their institutions to assist with the costs.²⁵

Another potentially problematic aspect of social media is that of patient privacy and medical professionalism. It is certainly the doctor's own responsibility to maintain professionalism, but many are concerned that medical students are ill prepared in this area and are blasé about the potential ethical issues. A study conducted in 2008 showed that only 10% of medical schools in the United States had written policies pertaining to appropriate behaviour on social media while only 38% of these explicitly stated what was discouraged and what was prohibited by the particular university. A further 54% of this group simply encouraged professionalism when using social media. As the use increases and social media is encouraged for education, medical schools need to create and update their policies in this regard. This can be easily done using existing policies from other institutions as a guideline. The authors of this paper went on to encourage both policies and opportunities for students to contemplate and discuss the implications of the image they choose to project, others' perceptions and privacy as part of their curriculum.²⁶

A review published in 2012 identified the most common ethical issues for health professionals in regards to social media.

These included:

- Confidentiality breaches
- Lack of guidance of students
- Lack of guidelines published by professional bodies or local institutions
- Loss of reputation of the profession
- Managing a personal image consistent with one's profession online²⁷

It is important to maintain the same ethical standards online as one would in person.

*"Remember that every time you tweet you might as well be shouting into a megaphone at a football stadium. Always protect patients and cast yourself and your colleagues in the best possible light. If you can't do that, keep it to yourself."*²⁸

7. What is out there and how does social media fit in?

While FOAM and social media are often considered synonymous this is not actually the case. FOAM is the concept of free online education and social media assists in connecting this global community, facilitating debate and the sharing resources.²

7.1 Twitter

*"Twitter is the global watercooler of medicine."*²⁹

Twitter has become an integral interface of the FOAM community. It is well suited for numerous reasons. Firstly, it is free which is in line with the community's ethos. It allows users to follow people that interest them as well as following general conversations on a topic that concerns them. This is done by searching for hashtags. Users who post on a certain topic add the hashtag to their post allowing those interested in this topic to search and find these tweets. FOAM posts which mention the #FOAMed assist users collect relevant information. FOAM is the concept while #FOAMed is the Twitter hashtag. Excitingly, sub-specialty hashtags are becoming more popular with critical care using #FOAMcc. As this movement becomes more popular, we are likely to see more of this collection and

collation of information. Currently, there is not a recognised hashtag for anaesthesia although the critical care information is useful and #FOAMus for ultrasound is relevant to many of us.

*"It is impossible to learn everything we need to know in medicine.
Now we're learning to access what we need to know.
The idea of human filters is critical.
On Twitter, I enlist about 800 really smart people
whose eyeballs scour the Internet for me."*³

Each tweet is limited to 140 characters. While, originally this brevity was thought to be a drawback of the platform, it has forced users to be to the point and allows for rapid sifting of the information. The tweets often contain a link to more information on the topic to follow for those interested.² It is important to note that a tweet is usually not the whole message. It rather transmits information and promotes broader conversations by linking to research articles, blogs, podcast, videos or forms part of a larger conversation. It is also a way to connect with the community and share practical tips and techniques that would not constitute research findings. Twitter is compared to a meeting place where FOAM users get together to interact. The main difference is that you can converse with anyone from around the world, at a different level to you and at any time. The important caveat is that the same rules of professionalism apply as they would at a face-to-face meeting.¹⁵

*"If research is organised curiosity, FOAM is asynchronous learning on steroids.
Why? Because virtually every person consistently contributing content is available and
willing to answer questions from anyone, defend positions, and
– dare I say it – admit it when they are wrong".*³⁰

7.2 Podcasts

Podcasting is a method of disseminating information and sharing knowledge via audio files in a format that enables the user to listen to them at their own convenience. They are used to communicate policy announcements, lectures and conference talks. A particular benefit of the podcast is the ability to multitask, listening to educational content while commuting, exercising or doing chores. In the last ten years there has been a growing number of podcasts created by doctors and offered by journals.

While initially some of these podcasts were described as 'uninspired mutterings' the quality and professionalism of podcasts have vastly improved since this time. In 2008 a review was published to assess the usefulness of podcasts. The authors found that general medical podcasts are potentially a good way to provide an overview of the latest research, and were particularly helpful in providing an opportunity to further the listener's knowledge on topics outside their specialty or core interest area. While they did find varying quality, this review was published five years ago and this is an area of rapid improvement.³¹ Podcasts are also superior for those who are auditory learners, which are meant to account for 30% of students while visual learners can benefit from educational video's sometimes referred to as vodcasts.³²

7.3 Blogs

Another integral aspect of the FOAM arena is that of blogs. These are pieces that people write and publish online for others to read. This can almost function as an online journal, can be made up of opinion, collections, synopses or practical advice and can be written by one person or compiled by a group. Entries may contain links to evidence or further reading on a topic, have videos or photographs embedded and often include a search function. They may even link to a lecture or a podcast on the topic and new posts are often promoted on Twitter. Most blogs allow for comments and discussions which further add value especially to those blogs with a large, well educated readership. Blogs can range from those on a wide variety of topics with a large readership or be highly specific with a small dedicated base. Blogs and blogging has become increasingly popular as they become easier to set up and organise.³²

Blogs are a convenient way to share educational content with groups of learners in medical education programs as well as provide a forum for interaction and discussion amongst learners and facilitators and have been successfully used by numerous resident programs overseas.

As medicine is not solely science but partially an art, part of specialist training needs to incorporate learning from others' experiences which is often difficult information to locate in traditional textbooks and articles. Blogs and podcasts are more suited to sharing this kind of wisdom.³³

A particularly useful aspect of some blogs are regularly published summaries and curated lists of the latest relevant literature. This aids in the filtering process and is a good starting point for those new to FOAM. There are numerous options available but the Life in the Fast Lane blog is a well known example. A weekly review is posted which directs the reader to high quality posts, podcasts and tweets as well as new and relevant literature on the topic of emergency medicine and critical care.³ Other examples include Critical Care reviews which focussed on the critical care literature and provides links to an extensive body of new work in this field every week and The Bottom Line which is focussed on providing critical appraisals of the literature. This, in combination with the comments from other readers, can serve as an informal journal club online.

7.4 YouTube and Vimeo

It is quite intuitive that videos would be useful in medical education as even rare conditions and procedures can be reviewed in this format. This allows the physician to be prepared without the relevant case presenting itself. It is also an effective way to transmit lectures and to teach more visually dependent subjects such as anatomy. In 2007, the Association of American Colleges put out the statement that video learning has the advantages of providing:

- safe, controlled environments which decrease the risk to patients
- authentic visualisation
- realistic cases for learning and assessment
- learner control of the type and amount of educational content
- repetition and practice
- allowing for learning at place and time independent of clinical opportunities
- standardisation of instruction
- numerous resources on any particular topic allowing for individualisation³⁴

Numerous studies have indicated that doctors taught procedures through videos have improved technique when performing the procedure on a patient. It was also shown that this

was even more relevant when it came to rarely performed procedures and teaching of visual content such as radiology images and electrocardiographs.³³

7.5 Wikis

A wiki (from the Hawaiian word wiki meaning to hurry) is a collaborative website which collects information. Although the articles can be produced and edited by anyone online, the sites are usually controlled to ensure high quality content. Most know it as an entry on 'Wikipedia-the Free Encyclopedia'. The object of these sites is to provide information and engender collaboration to construct a high quality entry. In terms of medicine, it has various roles mostly to assist with public and patient education via reference collaborations compiled by both medical and non medical people. Wikis are also used by medical students and clinicians to quickly source a synopsis of an unfamiliar topic. There are drawbacks however, as the information needs to be appropriately curated to ensure inaccuracies aren't published. There is also no individual authorship so the pride of authorship does not add incentive to ensure accurate information is provided and author's credentials and affiliations are unknown. Some see this as an advantage and view the ease at which these pages are edited as a selection process that will weed out inaccuracies. In fact, a recent review compared Wikipedia to the Encyclopaedia Britannica and showed a similar number of errors in both as well as comparable quality.³² The brevity of many of the articles often prevents them from being universally relevant to medical education but may serve to aid in revision of an obscure topic on the go.

7.6 Congresses and SMACC

Many site the popularity of the conference SMACC (Social Media and Critical Care) as some indication of the increasing interest in this topic. Where Mike Cadagon describes giving his initial talks on social media to a handful of conference delegates, there is now an entire conference dedicated to the concept. After the inception of FOAM, the first SMACC conference was held in 2013 with 700 delegates attending the event. Further success was gauged by the numerous Twitter conversations the congress prompted as well as the number of podcasts downloaded of the conference lectures across the globe. By 2014, the conference saw 1300 delegates as the enthusiasm for FOAM continues to grow.

The vision of the congress was to provide an event aimed at those interested in critical care that presented high level academic discourse in an innovative fashion using social media. The congress incorporates various different FOAM platforms including:

- Twitter feeds which discuss the talk in real time
- Podcasts and videos of all sessions which are available online
- Live streams to critical care sites
- Digital posters available online

Further, online technology can be used to publicise conferences. In 2012, the International Conference on Emergency Medicine (ICEM) used Twitter and podcasts to create awareness of their conference and to share research findings with a larger audience. When the tweets that included the hashtag #ICEM2012 were reviewed, there were over 4500 tweets about ICEM 2012. Of these, only 34% of the tweets were from those physically attending the conference. Further, 74% were directly related to information relayed at the conference. The authors concluded that there was a large virtual attendance of the conference and numerous relevant online conversations related to the topics presented.³⁵ This is not the only example of virtual conference attendance and the American College Emergency Physicians Scientific Assembly saw 1332 individuals tweet using their hashtag in 2013.³³

This allows for much wider participation and education without necessitating physical attendance from around the world.

7.7 Google Hangouts

Google Hangouts is a free platform that allows multiple users to conference and message via video. This is valuable in education as there is real time discussion irrespective of the location of the learners or supervisors. It was recently used by the ALiEM blog to set up a discussion with the authors of various papers to allow for direct questioning and creating another version of an online journal club but with the paper's authors present at the discussion.³⁶ It is also thought to be potentially useful to facilitate specialist training with registrars potentially at numerous locations at the time of the tutorials and to encourage study group sessions which could occur from home.

8. But is it useful for Medical Education?

It is difficult to really get a clear answer on this topic using the literature. This is partially because much of FOAM uses resources already accepted by the medical community and only aids in dissemination of the information. Much of the literature is also quickly outdated with research from just a few years ago already being irrelevant to current FOAM use. In fact, with the concept being so new, there has not been adequate opportunity to publish further research of the concept in its current form. This being said, due to the inherent nature of FOAM there are numerous blog posts, podcasts and videos that can give direction and aid in using this technology effectively.

One review including fourteen studies, considered the use of social media tools in educational programmes. Social media tools were associated with improved knowledge (measured by examination results), attitudes and skills. In this review, most of the studies focussed on social media for learner engagement and feedback while only 36% of the work looked at this tool for collaboration and professional development. The review also reported the challenges the users faced including technical issues, differing learning participation and privacy concerns. Like much of the work in this area, the trials included were considered to be of low to moderate quality with only one randomized controlled trial.³⁷

In another review of medical students, clinical excellence (specifically communication and interpersonal skills), professionalism, knowledge, diagnostic acumen and an interest in patient care were the focus of study. While it was felt that social media may be a useful adjunct to achieve clinical excellence, further studies are required to confirm if this truly is the case and if it is superior to existing, more traditional methods.³⁷

This being said, it is clear that internet resources are being widely used for medical education in various forms and to differing degrees. A paper was published looking at the effect of internet-based education when used for medical education. While there were 201 eligible studies there was a large heterogeneity across them. When looking at knowledge outcomes, learner behaviours and skills, Internet-based formats were comparable to non-internet formats and superior to no intervention.³⁸

Perhaps it would be more useful to look at the various internet-based options in an attempt to discover which is most useful for each particular learner outcome. It was suggested by the authors of table 1 that those preparing an internet based learning course need to consider certain questions when considering internet-based educational methods to optimally use the technology available.

Table 1.

Five questions for supervisors and learners to consider when creating an Internet-based course

Technology acceptance

1. How useful will the learners consider the Internet technology compared to that currently used? How will the technology:
 - a. Increase opportunities to learn?
 - b. Provide good quality, relevant information?
 - c. Be convenient?
 - d. Save money?
 - e. Save time?
 - f. Enable online course assessment?
2. Will the learners be able to use the technology easily?
3. Are the learners familiar with the proposed format?

Achieving interactive dialogue

4. How will the interaction of learners and supervisors be achieved? Options to consider include
 - a. Virtual seminars
 - b. Email
 - c. Real-time chat or video via google hangouts
 - d. Supplementary sources e.g. videos, podcasts
 - e. Assessment and feedback
5. How will interaction and feedback be assessed?
 - f. Online test questions?
 - g. Simulations?

They felt that courses would not be successful if they were produced without cognisance of the learner's abilities, needs and priorities.⁴⁰

While technology has assisted in educating the larger number of medical students which need teaching simultaneously, it is not without its challenges. Particularly those of access to facilities and the diverse capabilities of the students involved. Further, students are often expected to review online material in advance and need to be motivated to use this system for it to be useful.⁴¹ Wikis, blogs, videos and podcasts can serve as a useful adjunct but they may potentially complicate existing educational methods used. While they encourage easy sharing and collaboration, they also expose students to a diverse number of topics and case studies without the patient having to present to hospital to facilitate the learning opportunity which previously very much dependent on luck. It may, however, be necessary to educate learners in the technology proposed to optimise the student's learning. There is definitely a need to optimally harness the use of the potential tools available and to form initiatives to support CME.³²

Wang et al surveyed doctors as part of a CME course. Most respondents (89%) indicated that they used social media, 58% of which cited YouTube and 50% Facebook as the social media they used. It was noted from the survey, that those in the younger categories use social media more often and looked upon it more favourably while those in the oldest category reported never using social media. The investigators saw this as an opening to use social media to direct the appropriate CME courses to the younger generation. Unfortunately, this survey did not look at the use of online open access information in other forms such as downloadable journal articles and online discussions as they may have found that doctors over a wider range of ages were in fact using FOAM even if they were not social media users per se.⁴²

9. Where do I start?

Many of us are using aspects of FOAM already even if we are not necessarily aware of FOAM as a concept. Most commonly this takes the form of online searches and articles downloaded from the internet that we use regularly was part of our reading. While I also started with this aspect, I moved from there to podcasts and blogs while revising for exams as I was constantly looking for punchy, relevant information in formats that helped me remember and understand the information. It was while on the Life in the Fast Lane blog of Mike Cadogan and due to the numerous mentions of FOAM on podcasts that I became interested in some of the other aspects of FOAM and I joined Twitter. On reading further on this topic, I have found numerous references on how to optimise and individualise one's use of FOAM. For those whose interest has been piqued by this topic, I found these tips for FOAM beginners useful when I started.²²

1. Sign up to Twitter
2. Register yourself as a FOAM user and use the identifier #FOAMed on your profile
3. Be identifiable and stand by what you post but also be prepared to consider others who have a different opinion to you
4. Be professional
5. Be active and assist by correcting false or misunderstood posts
6. Be generous by both commenting on other's posts and sharing what you read
7. The more you put in, the more you get out
8. Read about FOAM on blogs such as Life in the Fast Lane (<http://lifeinthefastlane.com/foam/>) to better understand the concept
9. Use filters to avoid information overload and make sure to filter what you post
10. Have fun and don't take it too seriously!

I think that the points of being identifiable and professional are of particular importance. Users need to be aware that the posts you tweet are available to a large global community. It is vital that one is aware of one's professional conduct and what is being projected to this community. This is true in terms of patient's privacy, hospital reputation and the reputation of the medical profession as a whole. These factors are especially important as creators of FOAM content are not able to control who accesses the material. Resources can also be altered and reused in numerous ways unrelated to the original intent of the post. One should be aware that virtual professionalism is at least as important as real world professionalism. This is one of the reasons anonymity is discouraged so that everyone can take responsibility for their statements. Those using social media also need to be aware that what you say online stays online.²⁵

10. Which aspects are helpful for Anaesthesia and Critical Care?

Blogs

Critical Care	Anaesthesia
Critical care reviews criticalcarereviews.com	Open Anaesthesia Openanesthesia.org
Intensive care network intensivecarenetwork.com	Open Airway Openairway.org
Critical care medicine journal club ccm.pit.edu/education/jc-blog	Dr Smith's ECG Blog hqmeded-ecg.blogspot.com
Thinking critical care Thinkingcriticalcare.com	Scancrit (anaesthesia, critical, emergency) Scancrit.com
Pulmccm Pulmccm.org	Anaestricks Anaestricks.tumblr.com
Life in the Fast Lane LITFL.com	Gas Exchange (Anaesthesia, pain, resus) Gasexchange.com
Emcrit Emcrit.org	Gasdoc2857 (anaesthesia, echo, critical care) Gasdoc2857.wordpress.com
	Great Z's Blog.greatz
	Sandman Quietusleo.blogspot.com

Useful sites which focus on critically appraising the literature and providing an overview of the literature include:

- EM (Emergency Medicine) Literature of Note
- The Bottom Line which includes good summaries of pertinent research articles
- Pulmccm which focusses on pulmonology and critical care
- St Emlyn's

Podcasts

Critical Care	Anaesthesia
ICU rounds (stopped 2012)	Openanaesthesia (interviews with experts, literature review, echo and obstetric anaesthesia)
Emcrit (Opinion of Scott Weingard on Critical care, resus and emergency medicine topics)	Dr Podcast (FCA viva preparation)
SMACC (Lectures recorded at the SMACC congress)	World of Anaesthesiology tutorial
RAGE (Hour long discussions on critical care topics)	Gascast (Informal discussion lead by registrars)
St Emlyn's (mixed critical care and emergency medicine)	Californian Society of Anaesthesiologists (Hour long lectures)
	Anaesthesia cases (10 minute talks)
	British Journal of Anaesthesia

Videos

In anaesthesia and critical care useful videos can be accessed on

- Airway techniques (openairway.org/videos and emcrit.org/procedures/cricothyrotomy)
- Unfamiliar procedures
- Ultrasound (Isora.com)
- Echocardiography
- ECG and radiology
- Ventilation (respiratory review on YouTube)

Ultimately, although FOAM is in its infancy, it is a vibrant and enthusiastic community who strives to share medical knowledge via different formats. It is in no way meant to replace traditional educational practices but is an adjunct to that already being used. It is well suited to adult education and CME as it allows for a problem orientated approach to learning. There are drawbacks as certain topics are considered fashionable whilst others are neglected. There is also the potential for studies which aren't necessarily the best evidence to become the most widely publicised and those using FOAM still need to examine the evidence to aid in decision making. With these in mind, FOAM can be extremely useful.

There are many different ways to interact with FOAM which makes it suitable for many divergent topics and learning styles. It is also accessible to those who are not easily able to attend lectures and workshops. Whilst the community originated amongst emergency medicine doctors, critical care and anaesthesia posts are becoming more common. As Chris Nickson says, "Vive la FOAM!"

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