



ID: 457894
www.lulu.com



The Creation of The Medicine Box - Michael Tam and May Su

The Creation of The Medicine Box



May Su
Michael Tam



The Creation of The Medicine Box

How a hints and tips website for junior medical officers was conceived, developed, designed and launched

Dr Michael Tam
Dr May Su

License

Creative Commons Attribution-NonCommercial-NoDerivs 2.5

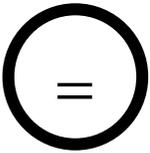
You are free to copy, distribute, display, and perform the work under the following conditions:



Attribution. You must attribute the work in the manner specified by the author or licensor.



Noncommercial. You may not use this work for commercial purposes.



No Derivative Works. You may not alter, transform, or build upon this work.

- For any reuse or distribution, you must make clear to others the license terms of this work.
- Any of these conditions can be waived if you get permission from the copyright holder.

Your fair use and other rights are in no way affected by the above.

This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivs License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/2.5/> or send a letter to Creative Commons, 559 Nathan Abbott Way, Stanford, California 94305, USA.

“

Doctor

etymology Latin:

doctor –oris [a teacher]

from

docere [to show, teach]

”

Introduction

What is “The Medicine Box”?

“The Medicine Box” is an internet website in the format of a blog; a blog being “a type of website where entries are made ... displayed in a reverse chronological order”¹. The principle authors of the website are Michael Tam and May Su, registrars in general practice at the time of the website’s launch in April 2006.

“The Medicine Box”
<http://vitalis.wordpress.com>

The target audience is Australian junior medical officers; with a specific aim at PGY1 (interns) and PGY2 (resident medical officer level 1), though the content would be of value to senior medical students, junior hospital based registrars and general practice registrars.

“The Medicine Box” was designed to provide practical, relevant and concise medical education. As per the rather tongue-in-cheek “tagline” of the website, we aimed to provide “handy hints and tips to save both you and your patient”.

¹ Blog [electronic article]. *Wikipedia*. Last updated 2 July 2006.
<http://en.wikipedia.org/wiki/Blog>

The website started as an infinitesimal whisper in the noise of the internet. However, as more content was added to the site, a turning point came in early June 2006 when it was indexed by Google. In the two months following, "The Medicine Box" was truly born, receiving 2,000 hits in June and almost 4,000 in July. By the time of this report (October 2006), the website had received over 15,000 visits and was averaging 250 a day.

Website traffic analysis confirmed that the suspected "area of need" in junior medical officer education did in fact exist. Although the site was aimed at Australians, there was significant traffic from international readers.

The website was developed as a combined "Professional Development Project" by May and Michael as part of their general practice training with the Sydney Institute of General Practice Education and Training (SIGPET). "The Medicine Box" was partly designed following the guideline suggestions for "educational development"².

This report, "The Creation of The Medicine Box" is a comprehensive documentation of the design, goals, development and construction of the website. It contains a review and analysis of the state of the project after six months. It has been published in the format of a book; the report was in

² Lo W., Stone L., Bunker J. [SIGPET educators]. Professional Development Skills Project [electronic documentation]. 15 May 2006.

addition written and designed as a guidebook to the development of online medical education resources.

“The Medicine Box” represents a significant body of work. We hope that you find both this report and the website worthwhile.

Best regards,

A handwritten signature in black ink, appearing to read "Michael Tam". The signature is fluid and cursive, with the first name "Michael" written above the last name "Tam".

Michael Tam

6th October 2006

A handwritten signature in black ink, appearing to read "May Su". The signature is fluid and cursive, with the first name "May" written above the last name "Su".

May Su

The authors

The two authors of this book are also the authors and collaborators of “The Medicine Box”. The following is a very brief summary of their public biography. Current and detailed biographies are available online from the website.



Dr Michael Tam

B.Sc.(med), M.B., B.S. (*University of NSW*)

General Practice Registrar
Sydney, Australia

vitalis@michaeltam.com

At “The Medicine Box”

- Website administrator
- Contributor
- Editor



Dr May Su

B.Sc.(med), M.B., B.S. (*University of NSW*)

General Practice Registrar
Sydney, Australia

maysu@michaeltam.com

At “The Medicine Box”

- Contributor

Acronyms used

AI	artificial intelligence
BBC	British Broadcasting Corporation
CBC	Canadian Broadcasting Corporation
CSS	cascading style sheets Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in a markup language. Its most common application is to style web pages written in HTML and XHTML, but the language can be applied to any kind of XML document. ³
FAQ	frequently asked questions
GP	general practice or general practitioner
GMT	Greenwich mean time
GUI	graphical user interface
HTML	hypertext markup language HyperText Markup Language (HTML) is a predominant markup language for the creation of web pages. It provides a means to describe the structure of text-based information in a document — by denoting certain text as headings, paragraphs, lists, and so on — and to supplement that text with interactive forms, embedded images, and other objects ⁴ .
MSNBC	A combination of MSN (Microsoft Network) and NBC (National Broadcasting Company) A 24 hour cable news channel in the United States and Canada and a news website.
NSW	New South Wales
PGY1	post-graduate year 1 The first year of clinical medical practice following graduation from a tertiary medical degree. For most junior doctors, this would be their “internship”.

³ Cascading Style Sheets [electronic document]. *Wikipedia*. Last updated 16 September 2006. http://en.wikipedia.org/wiki/Cascading_Style_Sheets

⁴ HTML [electronic document]. *Wikipedia*. Last updated 19 September 2006. <http://en.wikipedia.org/wiki/Html>

PGY2	<p>post-graduate year 2</p> <p>The second year of clinical medical practice following graduation from a tertiary medical degree. For most junior doctors, this would be their first year of “residency”.</p>
PGY3	<p>post-graduate year 3</p> <p>The third year of clinical medical practice following graduation from a tertiary medical degree. For most junior doctors, this would be their second year of “residency”. The most common hospital role for junior doctors at this level of experience would be either as a RMO2 (resident level 2), senior resident or a (junior) registrar.</p>
PHP	<p>PHP: hypertext pre-processor</p> <p>This is a recursive acronym for an open source high level scripting/programming language commonly used to produce dynamic web pages.</p>
RMO	<p>resident medical officer</p> <p>The position held by junior doctors in hospitals who have completed their year or internship but not working in a specific training program position (registrar).</p>
RSS	<p>really simple syndication</p> <p>RSS is a simple XML-based system that allows users to subscribe to their favourite websites. Using RSS, a webmaster can put their content into a standardised format, which can be viewed and organised through RSS-aware software. A program known as a feed reader or aggregator can check a list of feeds on behalf of a user and display any updated articles that it finds. It is common to find web feeds on major websites and many smaller ones⁵.</p>
RTP	<p>regional training provider</p> <p>A body responsible for training of general practice registrars. Training in Australia is divided into geographical catchments, hence, “regional”.</p>
SIGPET	<p>Sydney Institute of General Practice Education and Training</p> <p>The regional training provider (RTP) responsible for training registrars in general practice in metropolitan Sydney.</p>
SQL	<p>structured query language</p> <p>This is the most computer language used to manipulate a relational database management system.</p>

⁵ RSS (file format) [electronic article]. *Wikipedia*. Last updated 18 September 2006. http://en.wikipedia.org/wiki/RSS_%28file_format%29

UK	United Kingdom
URL	uniform resource locator This is the “address” for a web based resource.
USA	United States of America
WYSIWYG	what you see is what you get A term used in computing to describe a system where the appearance during editing is very similar to the published or printed product.
XML	extensible markup language It is a general-purpose markup language for creating special-purpose markup languages, capable of describing many different kinds of data. XML is a wide standard to encode structured information ⁶ .

⁶ Extensible markup language. *Wikipedia*. Last updated 15 September 2006. <http://en.wikipedia.org/wiki/XML>

Table of Contents

Introduction	v
What is "The Medicine Box"?	v
The authors	viii
Acronyms used.....	ix
Table of Contents	xii
Blueprint of the website	1
The Medicine Box began as an idea	3
Why a website?	4
Why a blog?.....	7
The goals of the project.....	9
The topics of focus	10
Article design format	11
<i>Example of visual design of an article</i>	13
Construction of the website	17
Selection of the blogging system	19
<i>Blogger</i>	19
<i>LiveJournal</i>	20
<i>TypePad</i>	21
<i>Wordpress</i>	21
<i>Blogger versus Wordpress</i>	22
Setting up the basic website design	24
<i>Customised sidebar widgets</i>	28
Permanent static pages.....	29

<i>About this site</i>	29
<i>Who are the authors?</i>	31
<i>Disclaimer</i>	33
Article layout	36
Publishing articles.....	38
Recruiting authors	41
<i>Friends and peers</i>	41
<i>GP supervisors</i>	42
<i>Open invitation on the website</i>	42
List of article titles.....	43
The impact of the website on the internet	47
Review of traffic	49
<i>Google giveths and Google takeths away</i>	50
The world according to Google	52
Subscription to the website.....	58
Who is using the website?.....	60
<i>Daily hits analysis</i>	61
<i>Referral links</i>	61
<i>The great firewall of China</i>	63
An unexpected problem	64
<i>Example of a question and the response</i>	65
Results of the website	69
Topics of focus.....	71
<i>Analysis</i>	73
Review of website goals.....	74
<i>Personal goals</i>	74

Audience-centric goals 79

Discussion..... 83

Estimate of time spent on the project 85

Concluding comments 87

Blueprint of the website

The Medicine Box began as an idea

“**T**he Medicine Box” had its origins as a pet project by Michael Tam. During his PGY3 (resident medical officer level 2) year in 2005, Michael formally entered the general practice training program offered by SIGPET. Rather than general hospital terms, Michael worked for six months in Aged Care and Rehabilitation at Coledale District Hospital at the beginning of 2005. With the workload being somewhat less onerous than in the local tertiary referral hospital, and with many interns rotating through rehabilitation terms at Coledale, one of the “unofficial” job requirements for the senior resident/GP registrar at Coledale was to provide medical education.

Several of the articles began as tutorials that Michael delivered to interns at Coledale District Hospital.

After teaching interns on a semi-regular basis for several months, along with his own recent experience of internship and residency, Michael developed a keen sense that there was a gap in the standard medical education (for graduates of the NSW medical schools) in preparing interns for their first year of clinical practice.

Initially, the articles that were destined to be published in “The Medicine Box” were written for a book. However, for various reasons that project stalled in late 2005/early 2006 and the articles were resurrected in their online incarnation after substantial modification.

In March and April 2006, the idea of a “hints and tips” website was developed for the Professional Development Project. Michael liaised extensively with May Su who became the second principal author and collaborator of the website. May had an interest in mental health and during her work as a psychiatry registrar in 2005 participated in regular medical education for junior medical officers.

Many of the mental health articles on the website were either directly written by May or the bulk of their content edited from study notes.

Why a website?

The choice of publishing articles on a website was in part a philosophical decision.

The traditional dissemination of medical information through lectures and printed handouts can be likened to a “push system”

in the language of the advertising industry⁷. Although it is perhaps the most direct method, the target audience would be small with limited resources. Furthermore, the lack of “uniqueness” of the endeavour (i.e., medical students, interns and residents receive copious number of lectures and tutorials) would dilute its impact.

A website on the open internet can be described as a “pull system”⁷. Someone searching for information that ultimately directs them to “The Medicine Box” are likely to be actively interested in the content of the articles. Furthermore, the nature of the internet transcends geographical boundaries. It enables an audience beyond the immediate local hospitals, medical schools or general practice registrars in the same RTP (regional training provider).



Michael says:

“

The book that will never be completed and was cannibalised for “The Medicine Box” was to be named “101 Tips for Medical Interns”. The eventual creative barrier that brought that project to a halt was the inability to summarise articles to fit the design objectives of the book.

”



May says:

“

I felt that online education was the most effective means of disseminating information to the widest number of people. The easiest way to obtain information for myself was often Google rather than a traditional paper based resource.

”

⁷ Coleman H. Push vs. Pull Advertising [electronic article]. *BeYourOwnBoss.org*. Last updated 1 February 2006. <http://www.beyourownboss.org/files/articles/2003/pushvspull.htm>

Initial research of the material available on the web discovered a potential niche in internet medical information. There was an abundance of extremely detailed online material that rivalled traditional medical textbooks (e.g., Up-To-Date, eMedicine). However, like traditional textbooks, the material tended to be scholar works; lengthy, overly detailed, heavy on the science and light on the practicalities of management relevant to junior medical officers.

The other types of website were those that catered to the layperson. By large, they lacked sufficient detail for clinical practice.

The seeming paucity of online medical education resources aimed specifically at junior medical officers seemed to reflect the same processes that led to the “gap” in some areas of practical clinical knowledge in interns. A goal of “The Medicine Box” was to help address that gap.

Another significant consideration in the choice of a website over other media was purely pragmatic. Michael had extensive experience in website authoring and maintenance. In April 2006, Michael was the administrator for four websites, two that were active. He was furthermore a moderator of a very large internet forum (VideoHelp.com; a video editing and authoring website).

Indeed, his first website (started in 1997) “Medical Student’s Retreat” was a website for medical education; a collection of anatomy notes and summaries created for his peers. Michael was conversant (though not fluent) in the new technologies and systems available for website creation.

A website additionally facilitated the publishing of articles as they were written, rather than as single collection (e.g., a printed publication). This was deemed important as it was planned that there would be multiple authors to the content. Moreover, this made possible the production of greater quantity and quality of content that could conceivably be delivered through a tutorial or lecture.

Why a blog?

// Blog is the contraction universally used for weblog, a type of website where entries are made (such as in a journal or diary), displayed in a reverse chronological order.

Blogs often provide commentary or news on a particular subject, such as food, politics, or local news; some function as more personal online diaries. A typical blog combines text, images, and links to other blogs, web pages, and other media related to its topic. Most blogs are primarily textual although some focus on photographs (photoblog), videos (vlog), or audio (podcasting), and are part of a wider network of social media¹.

//

Early in the development of “The Medicine Box”, there was a choice to create either a “standard” website or to use a blogging system. Ultimately, the blog format was chosen. This decision was again mostly a matter of pragmatism.

Blogging systems allow for “push button publishing”, aiming for simplicity in creating and delivering the content⁸. Other advantages include:

- Preset and interchangeable templates – vastly simplifying the process of website design and prototyping;
- the ability to post new content from a graphical user interface (GUI) not too dissimilar from using a word processor;
- posting new content can be mostly achieved without human involvement in the underlying code (i.e., HTML, CSS, XML);
- the ability for comments to be posted directly to an article by public readers;
- automatic indexing in search engines (e.g., Google and Technorati);
- the automatic creation of syndication feeds allowing for subscription through RSS (really simple syndication);
- free content hosting.

Although a traditional website would have been more flexible with regards to the design, it would also have required a

⁸ Pushbutton publishing [electronic article]. *Wikipedia*. Last updated 10 September 2006. http://en.wikipedia.org/wiki/Pushbutton_publishing

comparatively inordinate amount of coding to achieve some of the common features that come routinely with a blogging system. As such, the judgment was made that a blogging system would be the preferred format for “The Medicine Box”.

The goals of the project

The objectives of the project can be divided into two general categories; (i) author-centric goals, and (ii) audience-centric goals.

There were a number of personal achievements that May and Michael wished to accomplish with “The Medicine Box”. These included the following:

- To develop a quality medical education website for junior medical officers, including general practice registrars;
- for the website to be regularly visited and for the content to be relevant to the target audience;
- to learn and experience website maintenance and management;
- personal education while writing clinical articles for the website;
- critically appraise evidence while researching articles;



Michael says:

“

The challenge of creating a new medical education website after the seven year hiatus since “Medical Students’ Retreat” was particularly exciting.

”



May says:

“

There were times that I felt lost as an intern. Hopefully, “The Medicine Box” helps address that need.

”

- reassess personal preconceptions and clinical practice while researching articles;
- consider the legal and ethical dimension of publishing medical and clinical information and recommendations on the open net;
- satisfy the requirements of the “Professional Development Project” for SIGPET.

The audience-centric goals:

- To develop articles that are clinically relevant for junior medical officers;
- develop comprehensive articles on topics perceived to be an area of weakness in junior medical officer/standard medical education;
- compare the expected target audience to the actual audience of the website;
- review the effectiveness of the articles;
- obtain feedback and constructive criticism of the website.

The topics of focus

The viewpoint behind the topical themes was that they should be areas that were common practice or common clinical scenarios for junior medical officers, but were poorly taught, or poorly performed in hospital. The determination of these topics came from the personal experience of the authors, and in part from what May and Michael ascertained from formal and informal teaching of

interns in their respective registrar and senior resident roles in hospital.

Key topics identified included:

1. Intravenous fluid therapy;
2. mental health;
3. anticoagulation;
4. dealing with stress / workplace conflict / medical administration / industrial issues

Although these themes were considered important, it was

decided that “The Medicine Box” would not be narrowed to the exclusion of others. Both May and Michael had other topics that they were passionate about and although they were not directly related to the four key topics, those articles were included on the website.



Michael says:

“

The topics that I felt were particularly important were intravenous fluid therapy and anticoagulation. I further had a particular interest in JMO rights and welfare and medical ethics.

”



May says:

“

I felt that the important issues were how to deal with conflict with colleagues and patients, and I had a particular interest in mental health.

”

Article design format

Rather than giving in to the temptation to simply unleash “pen on paper” and then publishing the result, “The Medicine Box” had a number of design guidelines for its articles. This was to provide increased legibility, relevance and consistency across the website.

The design objectives of each article were:

- Brevity;
- legibility;
- easy to understand;
- relevant on a practical level;
- for clinical advice to be clinically explicit;
- important points to be visually prominent;
- a clinical “gem” to be visually prominent within the opening screen of the article (i.e., seen without scrolling down);
- to be balanced and unbiased;
- personal (and unsubstantiated) opinions to be identified as such;
- content to be researched;
- research to be appropriately referenced.

Given that “The Medicine Box” was a blog, May and Michael agreed that it should uphold a “blogging code of ethics”. Although there was no universally accepted code or ethics, the “proposed code of blogging ethics” submitted and presented by Martin Kuhn at the “Blogging, Journalism, and Credibility Conference” at the Harvard Law School in January 2005 was deemed suitable.

The majority of the code of ethics was entirely compatible with the design objectives of articles and the website as a whole.

Promote free expression

Be as transparent as possible as to personal biases and affiliations

Emphasise the “human” element in blogging

- reveal identity
- promote equality in the blogosphere
- minimise harm to others
- activity promote community building

Prioritise factual truth

- never intentionally deceive readers
- be accountable for information posted on your blog
- cite and link to all sources
- secure permission before linking other blogs or web content

Promote interactivity

- post regularly to your blog
- respect blog etiquette and protocol
- be entertaining and interesting

The proposed code of blogging ethics (C.O.B.E) – (Kuhn 2005)⁹

Example of visual design of an article

On the internet, visual design and first impressions matters. A recent study by a Canadian team demonstrated that internet users formed opinions on a website (or webpage) after viewing it for as little as **50 milliseconds**¹⁰. If a favourable opinion was

⁹ Kuhn M. C.O.B.E: A Proposed Code of Blogging Ethics [electronic article]. *Presented at Harvard Law School, 21 & 22 January 2005.*

¹⁰ First impressions count for web. *BBC News (International version). 16 January 2006.* <http://news.bbc.co.uk/2/hi/technology/4616700.stm>

06.11.06 | Fluid resuscitation

Posted in Emergency, In The Field, Paediatrics, Wards, Emergency Dept., Michael Tam at 22:55 by Michael Tam

Index: [Intravenous fluid therapy](#)

Original article by: [Michael Tam](#)

There is only "one" rule for both adults and children:

Normal saline :: 10–20 mL/kg bolus :: fast as you can

If someone is shocked and requires emergency fluid resuscitation, your fluid of choice is **0.9% NaCl** or "normal saline". Don't fluff around with colloids or Hartmann's solution – choose bog standard saline.

For your average adult, round to the litre – so that would be giving either one or two bags of saline **stat**. And "stat" means as *fast as you can through a large bore I/V cannula* (by gravity or by hand pump). The infusion machines ("Baxters") only go as fast as 1L per hour. You don't have an hour. You should be able to get a litre in over a handful of minutes (should definitely be less than 10 minutes).

For children, you would probably aim more for a 20 mL/kg bolus rather than 10 mL/kg and you wouldn't round off. An 8 kg child should get a 160 mL bolus of saline. For the smaller volumes in children, it is often possible to push it in directly with a few large (e.g., 50 mL) syringes by hand.

After two 20 mL/kg fluid boluses in children, or 2 litres of fluid in adults, if there is no or poor response, you need to start transfusing blood / infusing inotropes, etc.

Why crystalloids over colloids?

Although there always seems to be a compelling "biologically logical" reason for using colloidal fluids in preference to crystalloids, this has not been borne out in study evidence. The Australian and New Zealand Saline versus Albumin Fluid Evaluation (SAFE) study compared outcomes at 28 days after either intravenous saline or 4% human albumin in the critical care setting. There was no overall clinically significant benefit (1).

The [Cochrane Database of Systematic Review](#) has a meta-analysis on the usage of saline versus human albumin. Its finding is that there is no significant difference between the two in critically ill patients. However, in a subgroup of those with burns, those treated with 4% human albumin appeared to have excess mortality when compared to saline (2).

The excess mortality was not detected in a meta-analysis of randomised controlled trials in the *Annals of Internal Medicine*, however, suggesting that any difference between the two would likely to be small (3).

In conclusion, there is no evidence that colloidal fluids are any better than saline in resuscitation and in some situations, there is some evidence that human albumin may be harmful. For other colloidal fluids like succinylated gelatin (Gelofusine) or polygeline (Haemaccel), they contain foreign proteins and there is a small risk of anaphylaxis (while there is essentially none from saline). Saline obviously costs less than colloids as well.

References

- (1) Finfer S, Bellomo R, Boyce N, French J, Myburgh J, Norton R. SAFE Study Investigators. A comparison of albumin and saline for fluid resuscitation in the intensive care unit. *New England Journal of Medicine*. 350(22):2247–56, 2004 May 27. [download PDF :: 665 kb]
- (2) The Albumin Reviewers (Alderson P, Bunn F, Li Wan Po A, Li L, Roberts I, Schierhout G). Human albumin solution for resuscitation and volume expansion in critically ill patients. *The Cochrane Database of Systematic Reviews* 2004, Issue 4. [download PDF :: 235 kb]
- (3) Wilkes MM, Navickis RJ. Patient survival after human albumin administration: a meta-analysis of randomized, controlled trials. *Ann Intern Med* 2001;135:149–64. [download PDF :: 562 kb]

Updated: Michael Tam (19 June 2006)

[Please read the disclaimer](#)

Search:

GO

Contact

Do you have any comments?

I welcome any comments or criticisms so reply to them in the article or post a message in the [feedback](#) page. Else, send me an e-mail

Pages

- [About this site](#)
- [Who are the authors?](#)
- [Disclaimer!](#)
- [Feedback](#)
- [Home](#)
- [Subscribe to webfeed](#)

Categories

- Authors (74)
 - May Su (9)
 - Michael Tam (65)
- Best Topics (3)
- Clinical (60)
 - Drugs & Alcohol (2)
 - Emergency (7)
 - Medicine (19)
 - Paediatrics (6)
 - Procedures (5)
 - Pauchiatry (13)
 - Surgery (8)
- General (42)
 - Advice (19)
 - Bants (7)
 - Resources (8)
 - Workplace (8)
- Location (121)
 - Emergency Dept. (35)
 - General Practice (31)
 - In The Field (2)
 - Wards (53)
- Site News (4)

Recent Posts

- [Stress as a junior medical officer](#)
- [Menopause – a summary of management](#)
- [The sacred and the profane of medicine](#)
- [Contraindications to metformin](#)
- [How to start oral hypoglycaemic therapy](#)
- [Common MMS item numbers for general practitioners](#)
- [How to change antihypertensives](#)
- [Paediatric resuscitation on a card](#)
- [How to manage workplace conflict](#)
- [How to treat hypoglycaemia on the ward](#)

Recent Comments

- [May Su on Menopause – a summary of management](#)
- [Michael Tam on Menopause – a summary of management](#)
- [Mel on Feedback](#)
- [Michael Tam on Two minute review of resuscitation](#)

Visually prominent box

Limit of first screen

Discussion further in article

References at end of article

formed initially, it was likely to last, and furthermore, the positive impression spreads to other aspects of the website (the "halo effect").

With this in mind, the articles on “The Medicine Box” were visually designed with some form of arresting information in a highlighted box at or near the top of the article that could be seen without scrolling down the page. Where this was not practical or possible, a thematic picture was placed on some articles to draw the eye to the page.

The article on intravenous fluid resuscitation was a good example of this design mindset. The most clinically practical information was placed in a highlighted box at the top of the article to grab the reader’s attention. Discussion on the evidence of treatment was placed further into the article; once someone was interested in the article they would probably be willing to scroll further to read. Insofar as the source research articles, the most authoritative source was obtained (in this case, Cochrane Collaboration Library reviews) and links were made available to the original articles.



Michael says:

“

I felt strongly about the visual design of each article. Having had designed and administered several websites, not to mention being a heavy user of the internet, I knew that superficial though it may be, the “book” often is judged by its “cover”.

”

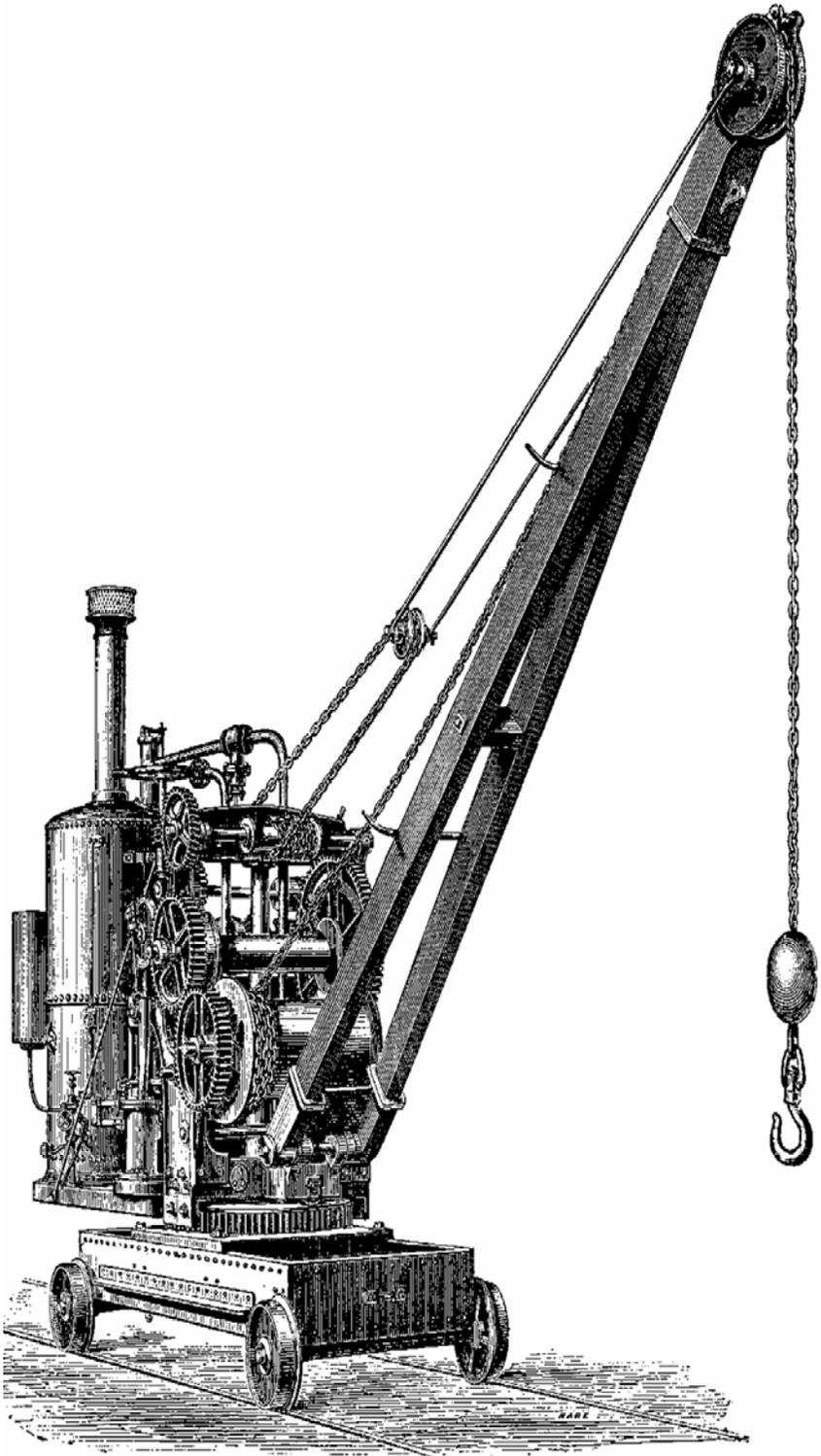


May says:

“

Unfortunately, Michael’s design criteria did make it difficult to write articles. A compromise that was later implemented was that Michael would edit the formatting of my articles before publishing.

”



Construction of the website

Construction of the website

Selection of the blogging system

Although most blogging systems had similar core features, each had its own advantages and disadvantages, as well as “additional features”. A number of different blogging systems were reviewed and compared. The main contenders were:

1. Blogger <http://www.blogger.com>
2. LiveJournal <http://www.livejournal.com>
3. TypePad <http://www.typepad.com>
4. Wordpress <http://www.wordpress.com>

Blogger



Blogger was initially launched in 1999 by Pyra Labs and is one of the oldest blogging platforms. In 2003, it was acquired by Google.

Blogger was seriously considered as a potential platform for “The Medicine Box”. Its main advantages were that:

- It was easy to use;
- it was a mature platform that performed reliably and well;
- hosting was free;
- templates could be customised without limitation;

- posts were automatically and reliably indexed by Google;
- templates could be edited in an unrestricted fashion;
- both May and Michael have had prior experience with Blogger.

Michael's personal blog, "vitalis' Medical Rants" (a biomedical, technology and political news and opinion-editorial website) was hosted on the Blogger platform.

However, the disadvantage with Blogger was also its age. It had a rudimentary feature set when compared its contemporaries. Furthermore, a blog made with Blogger lacks many of the "dynamic" features on other services since it works by publishing static pages. For example, "searching" cannot be performed internally within the website, with the search diverted externally to Google.

LiveJournal



LIVEJOURNAL

LiveJournal is more than a simple blogging service but also a virtual community with many social networking features. Although many of its features were intriguing, they were not entirely relevant for purposes of "The Medicine Box". Furthermore, although LiveJournal blogs could be hosted for free, there were a number of irritating limitations that could only be removed by upgrading to an advertisement sponsored account, or a paid account.

Given the limitations, LiveJournal was rejected as the blogging platform of choice.

TypePad



TypePad is perhaps the most fully featured blogging platform. It is the platform used by large media organisations for their websites including MSNBC, CBC, BBC and Sky News. It gives the best features and is the most configurable.

However, TypePad is a commercial enterprise only and it does not offer free accounts. Given that “The Medicine Box” was not designed to remunerate its authors, it seemed to make little economic sense to pay for a service when analogous free alternatives existed.

Wordpress



Wordpress is a relative newcomer to the blogging scene. Its rise to popularity came in 2004 after Six Apart (of TypePad) changed its licensing structure, forcing many users to migrate to other blogging systems.

Wordpress has excellent features including:

- Easy to use;

- searching within the website;
- categories with index pages of the categories automatically updated;
- the ability to manage static pages outside of the chronological order of the blog;
- visually stunning templates;
- “drag and drop” template customisation of modular elements;
- able to upload files and images;
- free hosting.

The disadvantage of Wordpress was that the system was not (as) mature. Some elements of the system did not work as expected. Furthermore, although modular elements of the template could be rearranged, the template itself could not be edited (for free).

Blogger versus Wordpress

In the end, it was a decision between Blogger and Wordpress.

One of the main differentiating features of Wordpress is that it is written in PHP and uses a MySQL database. Pages of a Wordpress website are generated dynamically; meaning that with the appropriate coding, summary pages, on-the-fly indices based on categories can be created easily. Blogger (at the time) worked by having a relational database as a backend but published static pages from the database.

In Blogger's approach all data relevant to publishing the website is stored on Blogger's (Google's) servers, making it relatively safe from corruption. The static pages can be published to either a personal or private webhost or to Blogger's own free hosting service. As only static pages are published, any webhost would do and the website could be easily "moved", by directing Blogger to re-publish the site to a new address.

However, as the pages are static, searching and the adding of comments on a Blogger published website cannot be performed

without re-diversion to Blogger's servers. Blogger did not support categories without a complicated workaround.

Wordpress' approach is that all the data relevant to publishing the website is kept on your own webhost (which again, could be either with Wordpress itself or a personal webhost). However, for the website to work, the server must support the installation of the necessary PHP code for Wordpress, as well as a MySQL database. Although this was not an issue when using



Michael says:

“

Given that my personal blog was hosted on Blogger, I was keen to use Blogger for "The Medicine Box" as well. However, Wordpress simply had the better features required for the project, though some initial problems made me question the choice more than once.

”



May says:

“

I had to defer the decision of the blogging platform to Michael. Nevertheless, I felt that I learnt a lot during the decision making process and from discussions prior to it being implemented.

”

Wordpress' own dedicated hosting service, setting up a personal site outside of Wordpress' servers would be somewhat involved.

After much deliberation, it was Wordpress' seamless ability to handle "categories" (e.g., an article could be tagged with the categories "psychiatry" and "general practice" and these attributes can be used for searching and listing) that lead to its favour. Given that the nature of "The Medicine Box" was a compendium of articles, the ability to categorise the articles was deemed highly valuable. There were a number of "hacks" available for Blogger including, (i) using a social bookmarking service called Del.icio.us, (ii) javascript code and (iii) using several Blogger.com weblogs, but each had limitations and were positively inelegant when compared to the system used in Wordpress¹¹.

Setting up the basic website design

Wordpress enables very easy selection of templates and basic website design alterations through its dashboard and "drag and drop" modules. Of the choices available, the most aesthetically pleasing was "Ocadia" created by Rebecca Wei, an IT student in Hong Kong. The range of "sidebar widgets" available was rather limited and requiring some hand coding.

¹¹ Coggins S. How do I add categories to my Blogger.com weblog? *About.com*. Last assessed 24 September 2006.

<http://weblogs.about.com/od/bloggercom/f/bloggercats.htm>

Current Theme



Ocadia by Becca Wei

A two column blue-grey theme, clean yet stylish.

Available Themes

Almost Spring



A two column theme. Light and simple with greens and oranges.

Ambiru



A calm, relaxing theme

Andreas04



A silver and blue theme with two sidebars on the right.

Andreas09



WP-Andreas09 theme for WordPress based on the open source template, andreas09 by Andreas Viklund - Ported to WordPress by Ainslie Johnson.

Banana Smoothie



A smooth theme with banana. Very personal.

Benevolence



An inclination to perform kind, charitable acts.

Blix



Connections



Contempt



Wordpress: theme selection

The Medicine Box (View site ») Howdy, Michael Tam. [Sign Out, My Profile] Feedback

Dashboard Write Manage Blogroll Presentation Users Options Upgrades

Themes Sidebar Widgets Edit CSS

Sidebar Arrangement

You can drag and drop widgets into your sidebar below.

Save Changes »

Sidebar

- Search
- Text 2
- Text 3
- Categories
- Recent Posts
- Recent Comments
- Text 4
- Text 1
- Blog Stats

Archives

Available Widgets

Akismet	Archives	Calendar	del.icio.us	Flickr
Links	Meebo	Meta	Pages	RSS 1

Save Changes »

Wordpress: Drag and drop sidebar widgets selection and arrangement

Main column

Sidebar

Title and tagline



The Medicine Box

Article title, header,
body and footer

Sidebar widgets

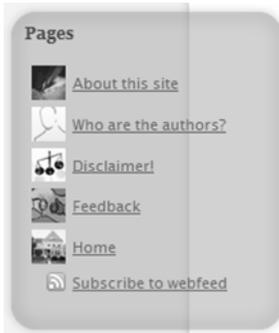
Customised sidebar widgets

Although the included Wordpress sidebar widgets were functional, they were somewhat generic and bland. A number of customised widgets were created using HTML in the standard “text” widget.

Rendered Widget **Comment**



One of the most important feedback measures is direct contact from readers of the website. As such, a prominent invitation for readers to send feedback was included on the sidebar.



Wordpress came with a “pages” widget as default but with no manner of customisation. The widget on the left was made as a replacement to allow links to various pages of “The Medicine Box”.



The widget on the left was created to allow quick access to a list of articles written by May and Michael as well as links to biographies (by clicking on the pictures).

Permanent static pages

A number of static pages were set up for “The Medicine Box”. These were developed as a frame of reference for the website. These pages were titled:

1. About this site
2. Who are the authors
3. Disclaimer

About this site

This page was a simple introduction and explanation to the purpose of the website and how it functioned. A brief opening was written furthermore to describe the character of the website and to connect with the website’s target audience; specifically, junior medical officers, particularly interns.

The pages states:



Michael says:

“

For something so simple, the “about” page was surprisingly difficult to write.

”



May says:

“

Although Michael and I agreed on the intent and scope of the page, actually putting it satisfactorily into words was elusive.

”

// The Medicine Box is a weblog devoted to junior medical officers, especially those in the first couple of years after graduation. There is, unashamedly, a strong Australian bias to this site. It is a treasure trove of tips, tricks and cheats; and hopefully within, a few pearls of wisdom.

The tips in this website is organised into categories that you can access by clicking on the relevant section in the “sidebar”. Good

medicine thrives on communication and this website is no different. If you have any comments that you wish to add then please post your "2 cents" worth for us all to see. I won't pay you but you'll feel better for it, I promise.

Introduction

As a new doctor entering internship in a hospital, you will soon realise your true position in the pecking order of the hospital. After 5 or 6 years of study, you have earned the right to be at the very bottom. Depending on the hospital, even the porters may give you attitude.

This is no more obvious than on your first day, particular those unlucky few that start on an evening or night shift. You don't know anyone and nobody knows you. You don't know where the wards are. You don't know where anything is. Quite frankly, you don't know very much... You will start to question your adequacy as a doctor. But not to worry! This is all normal.

Hopefully, what your medical education has given includes:

1. A grounding in pathology, physiology and pharmacology
2. The ability to take a medical history, perform a physical examination and to formulate a management plan
3. Emergency life support skills
4. Ability to recognise unwell patients
5. Ability to speak to other doctors as colleagues
6. Common sense

What you lack at the beginning of your working career is experience and this can only be gained by working. As long as you know your limitations and are willing to learn, you will get there in the end! You will learn more in your year of internship that you did in most of medical school. You will learn to be doctor in the wider holistic sense.

Everyone has "been there" and most of us have "done that" as some stage in their careers. Have fun!

//

The page was written by both May and Michael. It was based initially on a draft of the prologue to the book started by Michael. Although the introduction was edited and reworded repeatedly, neither Michael nor May were entirely satisfied with the "about" page. Ultimately, it was determined that we were

splitting hairs and decided to leave the page in its most recent revision.

Who are the authors?

In the proposed code of blogging ethics (Kuhn 2005), the third point is to “emphasise the human element in blogging”⁹. Thus, it was appropriate for there to be “biography” type pages. Nevertheless, the concern for internet safety was paramount, and there is always a danger in releasing personal information on the open net¹².

Firstly, it was decided that it would be nice to have a pictorial representation of both May and Michael though photos were out of the question. The compromise came in the form of an online “avatar” generator, the “Abi-Station Portrait Illustration Maker”. By selecting a vast variety of options, a composite cartoon “portrait” could be generated. The resultant depictions were pleasingly recognisable without being photographs.



Michael says:

“

Abi-Station Portrait Illustration Maker gave remarkably good results; almost perfect for our purposes.

”



May says:

“

Call me paranoid, but I was initially hesitant with the idea of a photograph or picture of me being on the web. The cartoon seemed a reasonable middle ground.

”

¹² McCandlish S. [EFF Technology Director]. EFF's Top 12 Ways to Protect Your Online Privacy [electronic document]. *Electronic Frontier Foundation*. 10 April 2002. http://www.eff.org/Privacy/eff_privacy_top_12.html



Portrait Illustration Maker

The part of a face or the body is choose and a portrait icon is made on-line.

What picture can be made?

What are an [up down] movement and a [left right] movement?

Choose a number randomly



	up	down	left	right		up	down	left	right
Back	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hairstyle(back)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Face line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wrinkles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Eyes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eyebrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Make up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mustache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hairstyle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Glasses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Accessory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hair ornament	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hair color	<input type="text" value="000000"/>				Skin color	<input type="text" value="F7DEAC"/>			
Eyes color	<input type="text" value="000000"/>				Lip color	<input type="text" value="000000"/>			
Ware color A	<input type="text" value="FFFFFF"/>				Ware color B	<input type="text" value="FF0000"/>			

WORD A

Color small to top to left (0-100)

WORD B

Color small to top to left (0-100)

Size of a picture

MSN Messenger Display Pictures(big) size:96-96 [[The sample picture according to size](#)]

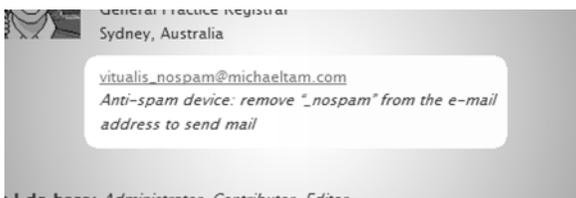
Create

Reset

Abi-Station Portrait Illustration Maker

http://illustmaker.abi-station.com/index_en.shtml

The second issue was that of e-mail. As we were publishing clinical articles, it seemed reasonable that our readers be able to contact us directly through e-mail. However, publishing an e-mail address on a webpage is almost an invitation to receive e-mail "spam". The way this was tackled was by installing a "spam trap" into the published e-mail addresses.



The anti-spam device

The addition of “_nospam” to the e-mail address was designed to fool automatic e-mail

collection “robots” scanning the web. However, “human” readers should be able to correctly remove the “spam trap” when sending e-mail.

A brief biography of both May and Michael were summarised onto a single page but this was later expanded into an individual page each.

Disclaimer

It has become common practice for most clinical and larger websites to include a legal disclaimer. A disclaimer¹³:

- Alerts the reader to the risks involved;
- done as a measure of legal protection;
- if someone hurts him/herself using something with such a disclaimer, he/she could be discouraged from seeking relief in a legal action.

During research into writing the disclaimer, it became clear that disclaimers have little legal standing. Although nothing definitive could be determined under Australian law, the

¹³ Disclaimer [electronic article]. *Wikipedia*. Last updated 14 September 2006. <http://en.wikipedia.org/wiki/Disclaimer>

following interpretation under English (UK) law was found from a commentary on the “WebLaw” website:

// The value of disclaimers is limited, since the courts normally attach more weight to the substantive content of the communication and the circumstances in which it is made than to any disclaimer. Having said that, disclaimers may possibly be helpful if an issue ends up in court in various respects such as those described below and, since disclaimers cost (almost) nothing, it is worthwhile to use them. Even though their effectiveness in court is doubtful, they may provide a useful argument in negotiations to resolve a dispute¹⁴.

//

The cynical conclusion of the author (Goldberg 2003) was, “they have no legal value, but you still might be able to frighten people with them anyway if you have sufficiently scary lawyers”. Given the above, we could not in good conscience compose a disclaimer in “legalese” and pretend that it had official standing.

Although “The Medicine Box” was designed for junior medical officers, the authors predicted that there was a high likelihood that laypeople may read the website as a source of medical information. As such, the disclaimer was designed to address both medical practitioners and the lay public in explicit terms.

¹⁴ Goldberg J. Stupid email disclaimers [electronic article]. *Jeffrey Paul Goldberg home page*. 14 August 2003. <http://goldmark.org/jeff/stupid-disclaimers/>

The page states:

// **For medical practitioners**

The Medicine Box, its authors, contributors and administrator completely absolve themselves of any potential liability or misadventure that may result from this website.

The articles on this website may contain advice that ranges anywhere from best practice to utter nonsense. If you choose to use any of the tips on this site, your clinical decision making is your own and the buck stops with you. We take no responsibility of any adverse outcome that might occur.

If you think that any information on this website is incorrect, then please either post a comment in the relevant article or contact the administrator. Remember, there are differing points of view in medicine and medical knowledge moves fast. It wasn't so long ago that the suggestion that peptic ulcer disease was caused by a bacterium was ridiculed, we used HRT to prevent cardiovascular disease in women and that beta blockers were "obviously" contraindicated in heart failure.

For the general public

Don't use this website for first aid and if you do so, you are entirely on your own. If you have a problem that you think you should see your doctor about, then, you should go see your doctor.

If your doctor does things differently or doesn't agree with tips on this website, this may be due to:

1. You have a misunderstanding of your illness;
2. there are differing opinions and/or views on management of your illness;
3. your doctor simply knows better.

Please don't use this website as any sort of authority!



Michael says:

“

I had always felt that the “disclaimer” was something taken much too seriously by most websites.

”



May says:

“

Caveat emptor.

”

//

The opinion of the authors was that the best way to avoid potential legal complications was by elaborating the limitations

of the website and its authors upfront, and, to have well considered and referenced articles.

Article layout

The conceptual design format of an article was explained earlier (pg 9). The practical implementation of that design philosophy was a different matter, and it was not always easy or practical to achieve. Nevertheless, the aim was for each article to contain the following layout:

1. Date and Article title
2. Categories and Time
3. Author
4. Introduction +/- highlighted clinical tip
5. Article body
6. Reference articles
7. Link to disclaimer
8. Comments

Again, the article on “intravenous fluid resuscitation” is a good example of the article layout.

Date and Title

Categories

Author

Introduction & Highlighted tip

Article body

References

Disclaimer link

06.11.06 | **Fluid resuscitation**

Posted in Emergency, In The Field, Paediatrics, Wards, Emergency Dept., Michael Tam at 22:55 by Michael Tam

Index: [Intravenous fluid therapy](#)

Original article by: [Michael Tam](#)

There is only 'one' rule for both adults and children:

Normal saline :: 10-20 mL/kg bolus :: fast as you can

If someone is shocked and **requires** emergency fluid resuscitation, your fluid of choice is **0.9% NaCl** or 'normal saline'. Don't fluff around with colloids or Hartmann's solution - choose bog standard saline.

For your average adult, round to the litre - so that would be giving either one or two bags of saline **stat**. And 'stat' means as *fast as you can through a large bore IV cannula* (by gravity or by hand pump). The infusion machines ('Baxters') only go as fast as 1L per **hour**. You don't have an hour. You should be able to get a litre in over a handful of minutes (should definitely be less than 10 minutes).

For children, you would probably aim more for a 20 mL/kg bolus rather than 10 mL/kg and you wouldn't round off. An 8 kg child should get a 160 mL bolus of saline. For the smaller volumes in children, it is often possible to push it in directly with a few large (e.g., 50 mL) syringes by hand.

After **two** 20 mL/kg fluid boluses in children, or **2 litres** of fluid in adults, if there is no or poor response, you need to start transfusing blood / infusing inotropes, etc.

Why crystalloids over colloids?

Although there always seems to be a compelling "biologically logical" reason for using colloidal fluids in preference to crystalloids, this has not been borne out in study evidence. The Australian and New Zealand Saline versus Albumin Fluid Evaluation (SAFE) study compared outcomes at 28 days after either intravenous saline or 4% human albumin in the critical care setting. There was no overall clinically significant benefit (1).

The [Cochrane Database of Systematic Review](#) has a meta-analysis on the usage of saline versus human albumin. Its finding is that there is no significant difference between the two in critically ill patients. However, in a subgroup of those with burns, those treated with 4% human albumin appeared to have excess mortality when compared to saline (2).

The excess mortality was not detected in a meta-analysis of randomised controlled trials in the Annals of Internal Medicine, however, suggesting that any difference between the two would likely to be small (3).

In conclusion, there is no evidence that colloidal fluids are any better than saline in resuscitation and in some situations, there is some evidence that human albumin may be harmful. For other colloidal fluids like succinylated gelatin (Gelifusine) or polygeline (Haemacel), they contain foreign proteins and there is a small risk of anaphylaxis (while there is essentially none from saline). Saline obviously costs less than colloids as well.

References

- (1) Finfer S, Bellomo R, Boyce N, French J, Myburgh J, Norton R. SAFE Study Investigators. A comparison of albumin and saline for fluid resuscitation in the intensive care unit. *New England Journal of Medicine*. 350(22):2247-56, 2004 May 27. [download [PDF](#) :: 665 kb]
- (2) The Albumin Reviewers (Alderson P, Bunn F, LiWan Po A, Li L, Roberts I, Schierhout G). Human albumin solution for resuscitation and volume expansion in critically ill patients. *The Cochrane Database of Systematic Reviews* 2004, Issue 4. [download [PDF](#) :: 235 kb]
- (3) Wilkes MM, Navickis RJ. Patient survival after human albumin administration: a meta-analysis of randomized, controlled trials. *Ann Intern Med* 2001;135:149-64. [download [PDF](#) :: 562 kb]

Updated: Michael Tam (19 June 2006)

[Please read the disclaimer](#)

Search:

Contact

Do you have any comments?

I welcome any comments or criticisms so reply to them in the article or post a message in the [feedback](#) page. Else, send me an e-mail

Pages

- [About this site](#)
- [Who are the authors?](#)
- [Disclaimer!](#)
- [Feedback](#)
- [Home](#)
- [Subscribe to webfeed](#)

Categories

- [Authors \(74\)](#)
 - [Mav Su \(9\)](#)
 - [Michael Tam \(65\)](#)
- [Best Topics \(3\)](#)
- [Clinical \(60\)](#)
 - [Drugs & Alcohol \(2\)](#)
 - [Emergency \(7\)](#)
 - [Medicine \(19\)](#)
 - [Paediatrics \(6\)](#)
 - [Procedures \(5\)](#)
 - [Psychiatry \(13\)](#)
 - [Surgery \(8\)](#)
- [General \(42\)](#)
 - [Advice \(19\)](#)
 - [Rants \(7\)](#)
 - [Resources \(8\)](#)
 - [Workplace \(8\)](#)
- [Location \(121\)](#)
 - [Emergency Dept. \(35\)](#)
 - [General Practice \(31\)](#)
 - [In The Field \(2\)](#)
 - [Wards \(53\)](#)
- [Site News \(4\)](#)

Recent Posts

- [Stress as a junior medical officer](#)
- [Menopause - a summary of management](#)
- [The sacred and the profane of medicine](#)
- [Contraindications to metformin](#)
- [How to start oral hypoglycaemic therapy](#)
- [Common MIS item numbers for general practitioners](#)
- [How to change antidepressants](#)
- [Paediatric resuscitation on a card](#)
- [How to manage workplace conflict](#)
- [How to treat hypoglycaemia on the ward](#)

Recent Comments

- [Mav Su on Menopause - a summary of management](#)
- [Michael Tam on Menopause - a summary of management](#)
- [Mel on Feedback](#)
- [Michael Tam on Two minute updates of emergency medicine](#)

Publishing articles

Wordpress includes an on-line GUI interface through a web browser for writing, publishing and editing posts. The interface tries to emulate the common features of a word processor.

Both May and Michael found that writing the article through this interface was unreliable (a failure of the internet connection would lead to unrecoverable loss of work). The usual process was thus for the draft of the article to be researched and written "offline", usually with Microsoft Word. Once the main draft was completed, it would then be copied into the Wordpress "write post" interface. Formatting was edited prior to posting.

Unfortunately, the Wordpress interface contained idiosyncrasies that almost always required correction with direct editing of the underlying HTML code of the post. This obstacle resulted in the problem that May could not directly post her own articles as she was not fluent in HTML. As a consequence, after writing her



Michael says:

“

Frankly, Wordpress' GUI interface despite "appearing" neat and well featured was a pain to use. At times, the formatting of the published result would be inexplicably different from the appearance in the edit box. This improved as Wordpress was upgraded over 2006 though it is still far from perfect.

”

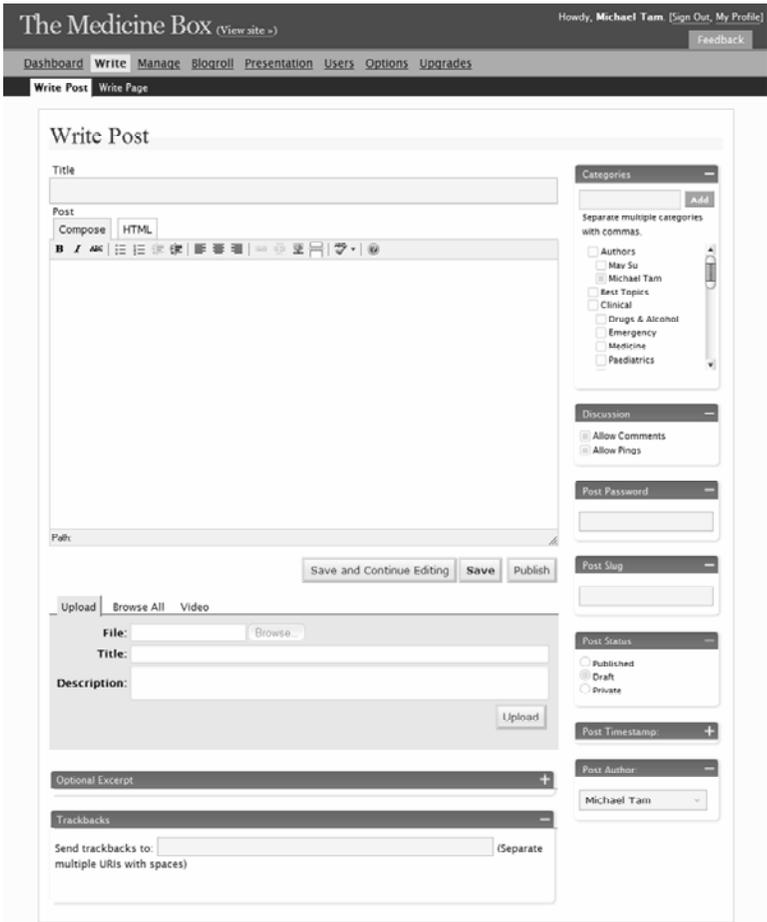


May says:

“

I couldn't work out how the Wordpress interface worked so giving the finished typed article to Michael for publishing seemed the easiest option.

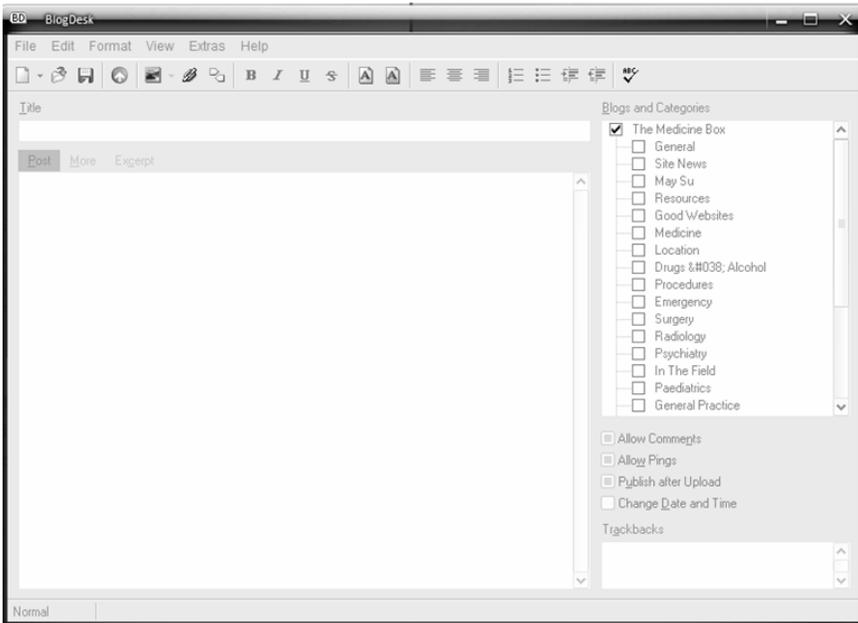
”



Wordpress: Write Post interface

articles, May e-mailed her articles to Michael, who then subsequently published it onto "The Medicine Box".

In August 2006, Michael discovered a free piece of software named "BlogDesk". This is an offline WYSIWYG editor similar to a word-processor. It enables blog posts to be written offline and then directly uploaded and published to the blog when completed. To quote verbatim from BlogDesk's FAQ:



BlogDesk: <http://www.blogdesk.org/en/index.htm>

// Writing new entries online using your weblog's control panel can get complicated and time-consuming, especially if you want to format your text or insert images. BlogDesk will make publishing a lot easier and speed up the whole process. Composing offline and using BlogDesk's extra features benefits beginners and experienced writers – they all can focus on the content instead of wasting time with technical details¹⁵.

//

BlogDesk did in fact smooth out the process considerably; so much so, that Michael used it exclusively for writing and publishing articles, after becoming familiar with its interface.

¹⁵ Oppermann J. FAQ: BlogDesk. *BlogDesk*. Last accessed 26 September 2006. <http://www.blogdesk.org/en/faq.htm>

Recruiting authors

There were two principal authors, Michael Tam and May Su, at the launch of “The Medicine Box”. It was hoped that additional authors and collaborators could be enlisted to the project. This was handled in three ways:

1. Friends and peers who were considered to have an interest in medical education were approached directly;
2. discussion with the then current GP supervisors for hints and tips;
3. an open invitation on the website for anyone who wanted to contribute articles.



Michael says:

“

Having collaborated previously with peers in university to create the anatomy notes website “Medical Student’s Retreat”, I knew it would be very difficult to find additional authors.

”



May says:

“

Several people expressed interest in the website but no one was willing to commit. Nevertheless, the feedback and suggestions were useful.

”

Friends and peers

May and Michael contacted a number of their peers, many in various specialty hospital training programs. Other GP registrars in SIGPET were also contacted. Although several people felt that the website was a good idea and had ideas on articles within their area of specialty, no one was willing to commit to the project.

This was perhaps understandable given that most of our prospective authors were short on time and the prospective of being a guest author was low priority.

The potential authors were contacted in person, by e-mail or by telephone. At the time of this report, no further authors had committed to write for "The Medicine Box".

GP supervisors

May and Michael were both working at the "407 Doctors" general practice in Darlington at the time "The Medicine Box" was launched. The website was exhibited to both GP supervisors at the practice for their comment and feedback. The suggestion of topics during this process, not to mention different perspectives on some of the existing articles were most useful.

Open invitation on the website

The likelihood that a member of the public would accept the invitation and actually help contribute an article was slim. All the same there was minimal additional effort required to include the invitation on the website.

The invitation was posted at the end of the "Who are the authors" page.

The invitation on the website is as follows:



This could be you!

AB.Cde., F.G.H

Potential Medical Weblog Author

We accept members worldwide!

Do you want to be a contributor?

"The Medicine Box" is always looking doctors with tips to share (or an axe to grind). Send an e-mail to the website admin (Michael Tam) if you want to join the team!

List of article titles

Articles published were freeform and in no particular order. The choice of article topic by the author was affected by a number of factors including: (i) the aforementioned four key topics (pg 8), (ii) personal interest, (iii) a topical issue in clinical practice, and (iv) encountering an interesting subject in study or reading journal articles.

At the time of this report, there were 72 articles published on "The Medicine Box". The complete list is as follows:

- Know your limitations
- Ask for help
- Essential equipment for the ward
- Things you may forget on your first day
- Get to know your team
- Embrace the multidisciplinary team
- Get "on side" with the nurses
- Remember that you are the doctor

- Help each other
- Keep a broad holistic outlook
- Beware of drug reps bearing gifts
- Never criticise a colleague in front of patients
- Recognise that you may hate some patients
- Get medical indemnity
- Protect yourself legally
- Form a strong JMO/RMO association
- Don't let administration steal your unrostered overtime and ADOs
- "Maintenance" IV fluids in euvoelaemic adults
- "Maintenance" IV fluids in euvoelaemic children
- "Maintenance" IV fluids in euvoelaemic neonates
- IV rehydration therapy in children
- Get a post office box with mail redirection
- Don't give out your home telephone number
- Get a fax machine and number
- Get a professional e-mail address
- Index: Intravenous fluid therapy
- Takedowns - Do not be a hero
- Dummies guide to the mental health legal system (NSW)
- Standard post-operative fluid management in adults
- GP Psych Support
- Antidepressants available in Australia
- IV fluid therapy in post-obstruction polyuria
- IV fluid therapy in post-operative oliguria
- Gastroenteritis in children
- Subcutaneous fluids
- Blood collection from intravenous cannula
- Index: Alternatives to venepuncture
- Don't prescribe opiates and benzodiazepines to new patients
- Prescription shopping information service
- Blood collection from radial artery
- Two minute overview of antidepressants
- How to start antidepressants
- Blood collection from external jugular vein
- Two minute overview of antipsychotics
- How to start antipsychotics
- How to use psychotropics in behavioural emergencies
- Psychotropic medications in the elderly
- Beware of serotonin syndrome

- How to use local anaesthetic
- Fluid resuscitation
- Schedule 2 and other forms
- How to start warfarin therapy
- Anticoagulation for prevention of venous thromboembolism
- How to use unfractionated heparin
- How to use low molecular weight heparin
- How to reverse warfarin
- Index: Anticoagulation
- How to reverse unfractionated heparin
- How to reverse low molecular weight heparin
- How to stop warfarin for surgery
- How to treat hypoglycaemia on the ward
- How to manage workplace conflict
- Paediatric resuscitation on a card
- How to change antidepressants
- Common MBS item numbers for general practitioners
- How to start oral hypoglycaemic therapy
- Contraindications to metformin
- The sacred and profane of medicine
- Menopause - a summary of management
- Stress as a junior medical officer
- Doctor's Health Advisory Service
- How to manage difficult patients

Over the six month period from the launch of the website to the time of this report, on average there were three articles published per week.



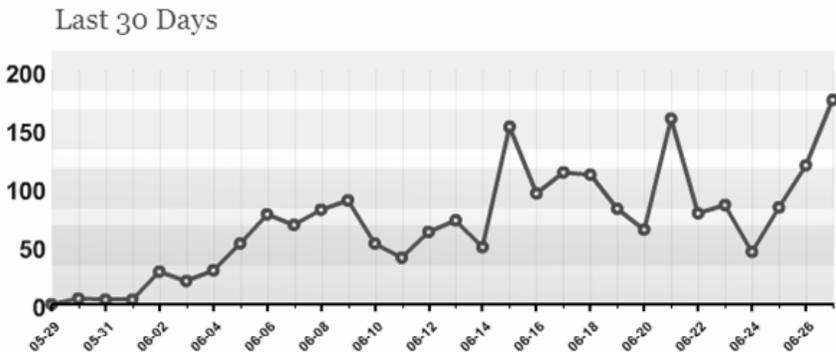
Impact of the website on the internet

The impact of the website on the internet

Review of traffic

“Hits,” the amount of traffic a website receives is its lifeblood. It is a crude measure of the popularity and the number of readers of a website. Obviously, not everyone who visits a website is a reader or finds the content relevant.

During the first month “The Medicine Box” was published on the internet, the amount of traffic to website was a trickle. There were less than 20 hits per day, often less than 10. However, on 2 June 2006, something interesting happened. The number of hits increased markedly and consistently over the month of June.



Website traffic: June 2006

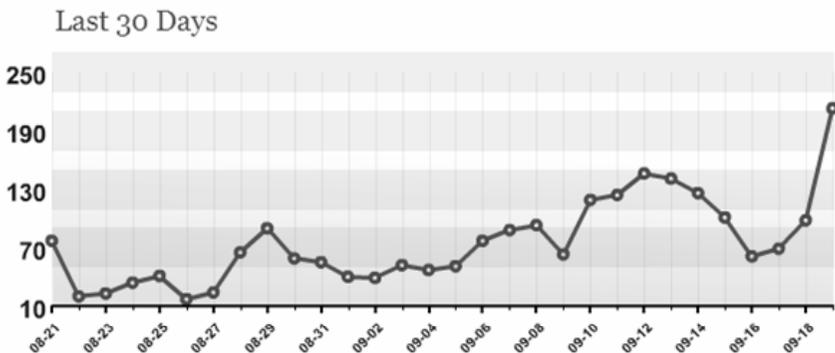
The reason for this increase in traffic soon became clear. The articles on the website were progressively indexed by internet

search engines, specifically, by Google. Relevant search terms in the search engines were listing articles from the website.

Google giveths and Google takeths away

Although there are many internet search engines, the most significant and important of them all is Google. Google has the largest market share, with approximately 45% of the US market¹⁶. Many smaller web search engines rely on the Google engine and the true value has been estimated to be over 75%.

It has become a truism that many websites rely on search referrals from Google for their traffic. As a result of a reasonably good ranking by Google, traffic on “The Medicine Box” continued to increase. In July 2006, the website was receiving over 4000 hits per month.



“Google dumped”: website traffic from 21 August to 19 September 2006

¹⁶ Lipsman A. Google’s U.S. search market share continues to Climb in June; Yahoo! Also posts gains [press release]. *comScore Networks*. 18 July 2006. <http://www.comscore.com/press/release.asp?press=935>

By early August 2006, the website was receiving over 200 hits per day on average. However, towards the end of August, "The Medicine Box" was, in the vernacular, "Google dumped". Inexplicably, the website no longer appeared on Google searches. Not surprisingly, website traffic dropped off quickly.

It was not entirely clear what led to this change in Google ranking. Possibilities include: (i) an adjustment in the search algorithms used by Google, (ii) changes in global settings following a Wordpress upgrade, or (iii) Wordpress or the website coincidentally being offline during one of Google's regular scans for new and updated content.

During early September 2006, website traffic increased again and it appeared that the website was once again re-indexed by Google. In the week following 18 September 2006 (the end of the graph in the diagram on page 44), the website averaged over 250 hits per day.



Michael says:

“

I was very happy with the number of page visits for the website. The "Google dump" was a bit of a shock, though it wasn't long lasting.

”



May says:

“

I was pleasantly surprised that so many people were reading our articles. Actually, it made me worry that I might be writing the wrong thing!

”

The world according to Google

A number of articles on the website were ranked extremely well in Google. At the time of this report, all of the following search terms in Google resulted incredibly with an article from "The Medicine Box" as the **top** search result:

- "IV fluids in adults"
- "post-operative iv fluid"
- "how to start antidepressants"
- "how to change antidepressants"
- "how to start antipsychotics"
- "how to start warfarin"
- "stop warfarin for surgery"
- "how to reverse warfarin"
- "how to reverse low molecular weight heparin"
- "how to treat hypoglycaemia"
- "workplace conflict junior doctors"
- "stress junior doctors australia"

Google's search algorithm works in mysterious ways.

The original "PageRank" algorithm¹⁷ is relatively well understood; the greater the number of links a page receives, the greater its "value" or "importance". However, this "democratic" if simplistic method of assigning "value" or "relevance" to a

¹⁷ Google Technology, Google searches more sites more quickly, delivering the most relevant results [webpage]. *Google*. Last accessed 2 October 2006. <http://www.google.com/technology/>

webpage has long been rendered meaningless by spammers who create vast networks of dummy websites in an attempt to boost their “PageRank” and exposure on Google search results.

In the context of “The Medicine Box”, there are very few links to its pages from external websites. There are thousands of webpages that contain the listed search terms from larger and better recognised medical websites. For the articles to be ranked so well would imply that Google search algorithms must be able to extract semantic context from webpages. This extraordinary achievement suggests some level of artificial intelligence. It has been suggested, in fact, than an AI program could learn the meaning of words by using Google¹⁸.

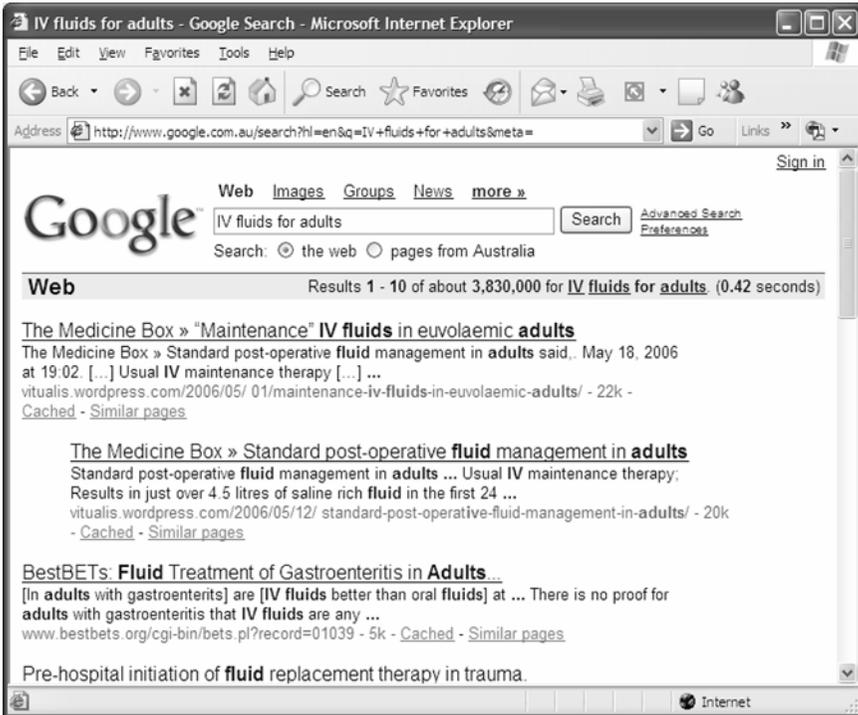
The sublime and ineffable nature of Google’s search engine was once lampooned by Google itself¹⁹:

// When a search query is submitted to Google, it is routed to a data coop where monitors flash result pages at blazing speeds. When a relevant result is observed by one of the pigeons in the cluster, it strikes a rubber-coated steel bar with its beak, which assigns the page a PigeonRank value of one. For each peck, the PigeonRank increases. Those pages receiving the most pecks, are returned at the top of the user’s results page with the other results displayed in pecking order.

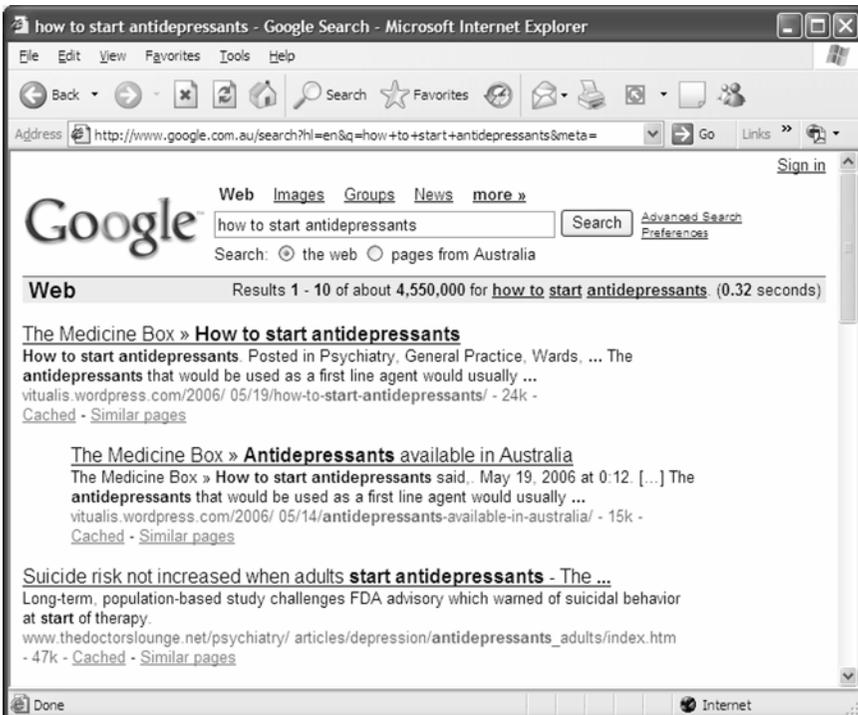
//

¹⁸ Graham-Rowe D. Google’s search for meaning [electronic article]. *New Scientist Online*. 28 January 2006.

¹⁹ Google technology, The technology behind Google’s great results [webpage – April fools joke]. *Google*. Last accessed 2 October 2006.
<http://www.google.com/technology/pigeonrank.html>



Search: "IV fluids for adults"



Search: "how to start antidepressants"

how to start antipsychotics - Google Search - Microsoft Internet Explorer

Address <http://www.google.com.au/search?hl=en&q=how+to+start+antipsychotics&meta=>

Google

Web Images Groups News more »

how to start antipsychotics Search Advanced Search Preferences

Search: the web pages from Australia

Web Results 1 - 10 of about 328,000 for **how to start antipsychotics**. (0.32 seconds)

The Medicine Box » Two minute overview of antipsychotics
 The Medicine Box » **How to start antipsychotics** said... June 5, 2006 at 18:38 [...] **Antipsychotics** are the most appropriate medication to use when someone is ...
vitalis.wordpress.com/2006/05/23/57/ - 20k - [Cached](#) - [Similar pages](#)

The Medicine Box » How to start warfarin therapy
 Thus, when you first **start warfarin**, there is a paradoxical initial pro-thrombotic ... **How to start antipsychotics** - Two minute overview of **antipsychotics** ...
vitalis.wordpress.com/2006/06/16/how-to-start-warfarin-therapy/ - 24k - [Cached](#) - [Similar pages](#)
[\[More results from vitalis.wordpress.com \]](#)

Schizophrenia Daily News Blog: Antipsychotics start working quickly
Antipsychotics start working quickly. Read more... Schizophrenia Medications
Antipsychotic drugs improve psychosis in patients within 24 hours of treatment ...
www.schizophrenia.com/sznews/archives/001900.html - 22k - [Cached](#) - [Similar pages](#)

Sponsored Links
[Antipsychotic drugs](#)
 Extensive information guide about antipsychotic drugs and psychosis
www.psychiatry24x7.com

Search: "how to start antipsychotics"

how to start warfarin - Google Search - Microsoft Internet Explorer

Address <http://www.google.com.au/search?hl=en&q=how+to+start+warfarin&meta=>

Google

Web Images Groups News more »

how to start warfarin Search Advanced Search Preferences

Search: the web pages from Australia

Web Results 1 - 10 of about 713,000 for **how to start warfarin**. (0.27 seconds)

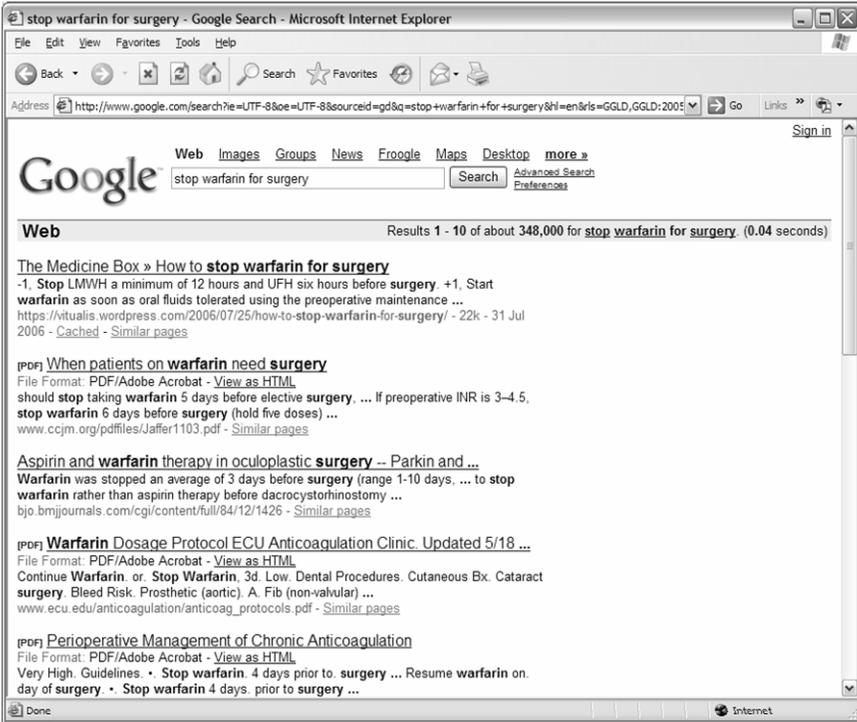
The Medicine Box » How to start warfarin therapy
 Thus, when you first **start warfarin**, there is a paradoxical initial pro-thrombotic effect. Other forms of anticoagulation are a necessity. ...
vitalis.wordpress.com/2006/06/16/how-to-start-warfarin-therapy/ - 24k - [Cached](#) - [Similar pages](#)

Chest -- eLetters for Garcia et al., 127 (6) 2049-2056
 [Read eLetter] A Way to **Start Warfarin** in Patients with Atrial Fibrillation ...
[otsukib\[at\]sky.quolia.com?subject=Re%3A+A+Way+to+Start+Warfarin+in+Patients+...](http://otsukib[at]sky.quolia.com?subject=Re%3A+A+Way+to+Start+Warfarin+in+Patients+...)
www.chestjournal.org/cgi/eletters/127/6/2049 - [Similar pages](#)

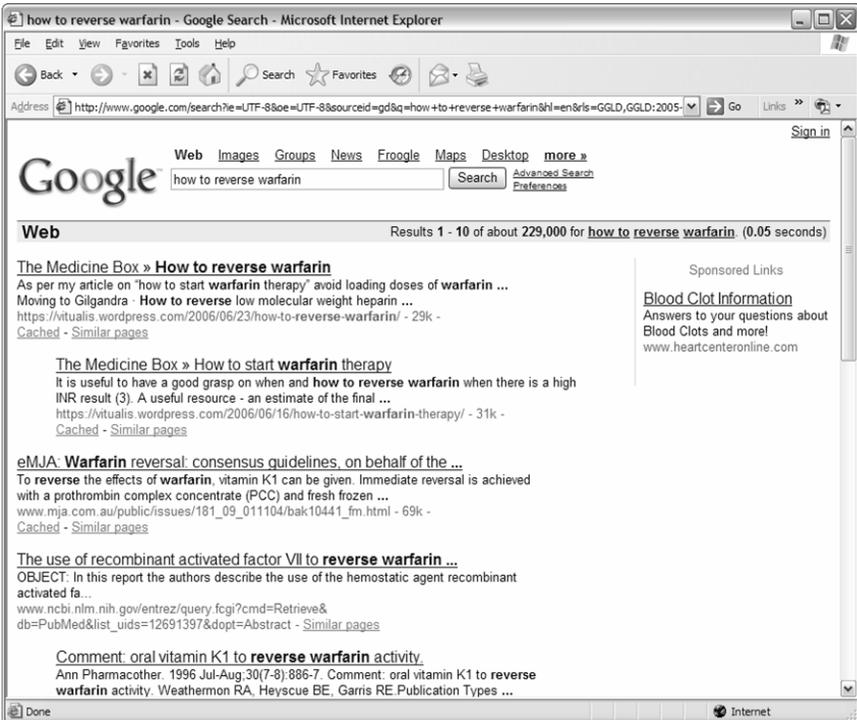
DrugDigest Warfarin
 When you first **start warfarin**, these tests are done frequently. Once the correct dose is determined and you take your medication properly, these tests can ...
www.drugdigest.org/DD/DVH/Uses/0_705%7CWarfarin,00.html - 31k - [Cached](#) - [Similar pages](#)

Sponsored Links
[Blood Clot Information](#)
 Answers to your questions about Blood Clots and more!
www.heartcenteronline.com

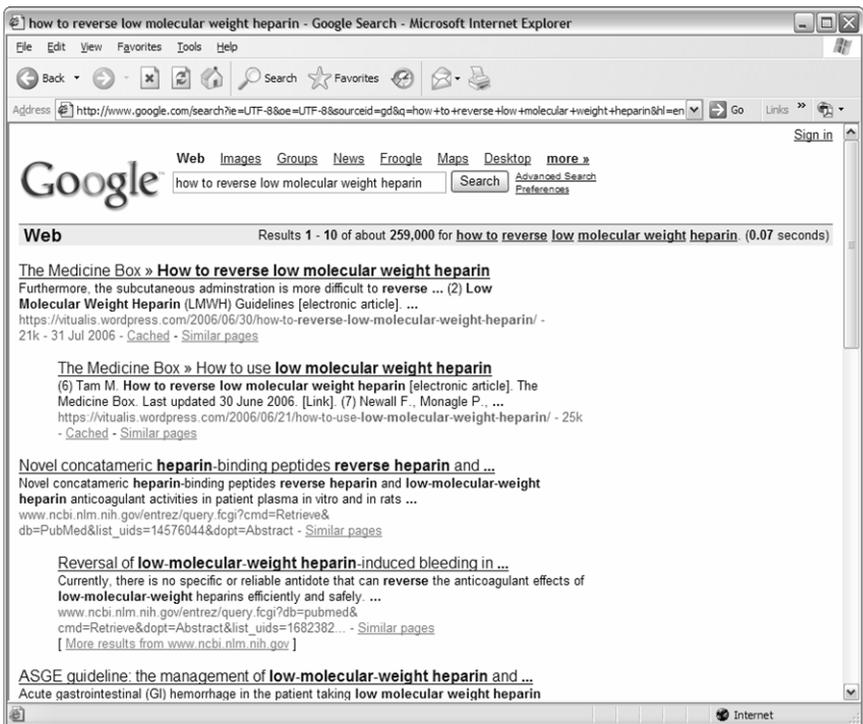
Search: "how to start warfarin"



Search: "stop warfarin for surgery"



Search: "how to reverse warfarin"



Search: "how to reverse low molecular weight heparin"

“The world according to Google” is a dominant and pervasive concept on the internet. Increasingly, people view Google search results as comprehensive and authoritative²⁰.

In the opinion of the Google search engine, many articles on “The Medicine Box” were considered the most relevant out of hundreds of thousands or millions of results for those search terms (see figures from pg 48-51). Many of those search terms were very generic (e.g., “IV fluids in adults” and “how to start antidepressants”).

This placed an unsettling and somewhat unwanted sense of responsibility on both authors.

Subscription to the website

As “The Medicine Box” was published using a blogging system, readers could subscribe to the articles using the RSS link and view the articles on a “feed



Michael says:

“

The Google rankings on these articles were thrilling, shocking and frightening all at the same time.

”



May says:

“

I was freaked out by the fact that according to Google, I was the world authority on starting antidepressants and antipsychotics!

”

²⁰ Salkever A. The Web, According to Google [electronic article]. *Business Week Online*. 10 June 2003.

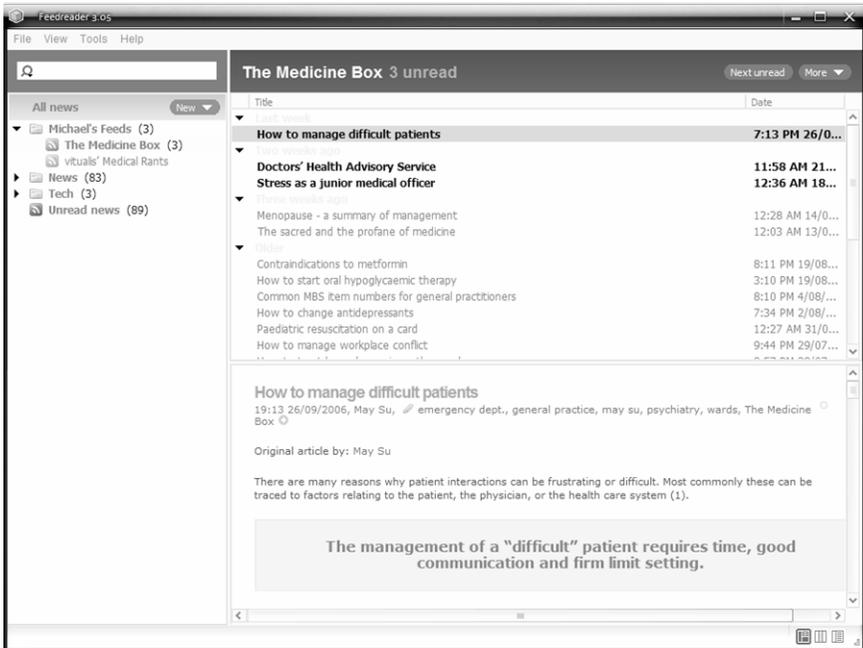
http://www.businessweek.com/technology/content/jun2003/tc20030610_2810_tc104.htm

aggregator". The average number of subscribers to the website can be considered a core group of regular readers.



RSS subscription link

<http://virtualis.wordpress.com/feed/>

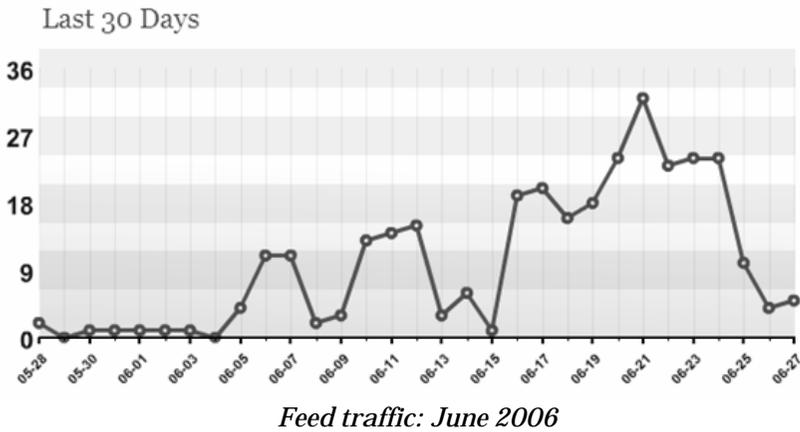


"The Medicine Box" subscribed with the feed aggregator program "Feedreader"

The number of subscribers to the website experienced a dramatic increase consistent with the increase in website traffic after the first indexation by Google in early June 2006. This increased from none to around 25 subscribers. It has since stayed mostly stable at this level.

Readers who subscribe to the website by RSS are automatically notified by their feed aggregator when new articles are

published. Spikes in daily activity of the feed usually correspond to the publishing of a new article. The magnitude of the spike gives an indication of the number of regular subscribers.



Who is using the website?

Once the website had been indexed with a significant volume of daily traffic, it became obvious to the authors that the readership of the website was international. Unfortunately, Wordpress only supplied crude website analytic tools; the number of hits, the top articles/pages visited, referring links and search terms used to find "The Medicine Box" from search engines.

Nevertheless, even from these measures a number of inferences can be deduced.

Daily hits analysis

The daily hits counter reset at GMT 0000, or at 10 AM in Sydney (GMT + 10) time.

Every day, approximately half of the hits were received between 10 AM to 10 PM, and the other half from 10 PM to 10 AM. If the readership was primarily Australian, then the expected pattern would be much fewer hits overnight. The hits overnight were most like from readers in Europe, Britain and North America. Where there was an imbalance, it was in favour of international readers.

Referral links

A referral link is the address of the webpage immediately prior to arriving at the website.

If the referral link came from a search engine, then this often gives an excellent clue of the nationality of the reader as most search engines are automatically customised to the localised version.

Secondly, the referral link sometimes gives an indication of the reader's organisation. For example, a referral link from a web-based e-mail system at a university, or a university bulletin board or forum will often be reflected in the URL of that link.

Today

Referrer

From Australia

websearch.optusnet.com.au/search?p=se...

2006-09-29

Referrer

University of Maryland

cannablog.wordpress.com/2006/09/27/pr...

websearch.optusnet.com.au/search?p=d...

search.nlworld.com/nlworld/search.p...

University of Washington School of Medicine

tychousa4.umuc.edu/HRMN365/0609/6981/...

faculty.washington.edu/momus/PB/fluid...

cannabisnews.com/news/22/thread22204...

websearch.optusnet.com.au/search?p=au...

mymail.graffiti.net/scripts/mail_read...

2006-09-28

Referrer

From Slovenia

google.si/search?hl=sl&q=A+patien...

google.si/search?q=A+patient+guide+to...

websearch.optusnet.com.au/search?p=ad...

google.co.ke/search?q=notes+on+menopa...

search.optonline.net/_1_NFETEG0253KYD...

websearch.optusnet.com.au/search?p=tr...

search.myway.com/search/CGmain.htm?...

From Canada

google.si/search?q=A+patient+guide+to...

aolsearch.aol.ca/web?query=can%205mg%...

ncbi.nlm.nih.gov/entrez/query.fcgi?db...

2006-09-27

Referrer

From United Kingdom

tiscali.co.uk/search/results.php?sect...

wordpress.com/tag/psychiatry

search.live.com/results.aspx?FORM=MSN...

dogpile.com/info/dogpile/search/web/rs...

wordpress.com/next

Small cropped list of recent referrers

Review of referral links has revealed visits from readers from most English speaking Western nations including the United States of America, Canada, the United Kingdom, Ireland, New Zealand and of course Australia. Occasionally, there were visits from disparate nations including Mexico, Brazil, Israel, Uganda, Kenya, Singapore, Malaysia and Hong Kong, and Europe.

Universities and medical schools that have been identified include all three medical schools in New South Wales (University of NSW, Sydney University and University of Newcastle), as well as a collection of others from Australia, New Zealand, the United States, Canada and the United Kingdom.

The great firewall of China

After a few months of managing the website May and Michael noticed that there was absolute no traffic from (The People's Republic of) China. Considering that China is increasingly well connected to the internet in the major cities we found this somewhat surprising.



Michael says:

“

It was great that there was such a wide audience to the website. At the same time, the fact that it was being censored from China was disappointing and a bit disturbing.

”



May says:

“

I had never thought that there would be so many people from across the world reading the articles.

”

We suspected that the website (and the entire Wordpress domain) was censored by the Chinese government. China has one of the most sophisticated and pervasive internet censorship systems with filtering at the level of the nation's internet backbone²¹. It has been reported that the ranks of internal "cyber-police" who quickly and efficiently clamp down on any online political dissent, number in the tens of thousands²².

The authors personally confirmed this suspicion in early July 2006 while in China. The entire domain of wordpress.com was not accessible within China, and neither were the majority of the Western (English language) blogging systems.

An unexpected problem

Both May and Michael anticipated that there would be clinical questions asked about some of the articles. Indeed, this feedback was encouraged and readers had an opportunity to post comments or ask questions at the end of each article.

What we did not foresee was that laypeople would ask for medical advice on the website. When this first happened, we had to make a decision on how this should be handled. The two

²¹ Hermida A. Behind China's internet Red Firewall [electronic article]. *BBC News Online*. 3 September 2002.

<http://news.bbc.co.uk/1/hi/technology/2234154.stm>

²² Handbook for bloggers and cyber-dissidents. *Reporters Without Borders*. September 2005.

http://www.rsf.org/IMG/pdf/handbook_bloggers_cyberdissidents-GB.pdf

main choices were: (i) we would refuse to give any advice and recommend that they see their regular physician, or (ii) we would offer an opinion, but one that was carefully considered and clearly detailed its limitations.

After considerable deliberation, the authors decided to proceed with the second option.

Interestingly enough, all the questions posted on the website by patients seeking medical information were related to therapy with warfarin.

Example of a question and the response

The following was the first question received by a layperson (from the UK) for medical advice (28 June 2006):

// Hi, I have a couple of questions that I can't seem to get proper answers to from the doctors. My wife was diagnosed with a large clot in her groin in January. She was given what appears to be the standard dose of Warfarin to get her INR to between 2 and 2.5 by DVT nurses. The usual practice is not to see a consultant until 16 weeks after diagnosis although after pushing we managed to get an appointment sooner. Her dosage it appears should have been much higher in order to try and disperse the clot. Now after 6 months the clot is still there. What are the chances of it dispersing now? What are the chances of getting another one after coming off of Warfarin? Do the risks of staying on Warfarin for life outweigh those of another clot? Thanks

//

In the end, it was the nature of the question that swayed our decision. It was a question that was absolutely relevant to

general practice. As we were both general practice registrars, we felt somewhat obligated to give an adequate response. Since Michael wrote the original article that the question was posted (“How to start warfarin therapy”), he wrote the response.

// **Firstly:** read the disclaimer.

Remember that I am not your regular physician. I do not have all the clinically relevant information. The below is simply my opinion on the limited information that you have provided me.

After a DVT (deep vein thrombosis), the standard therapy is anticoagulation with warfarin to achieve an INR target between 2 and 3 (so a target of 2 to 2.5 is entirely appropriate). A higher dose of warfarin would not significantly reduce the risk of a venous thromboembolism or extension of the thrombosis while increasing the risk of bleeding complications.

Warfarin is not a thrombolytic (clot dissolving) agent. That means, it does not break down or “disperse” clots. The purpose of anticoagulation with warfarin is to prevent the extension of the thrombosis and to prevent thromboembolism (i.e., clots breaking off and lodging in the lungs causing pulmonary embolism and pulmonary infarction). It does this well and with warfarin therapy, the risk of a pulmonary embolism is reduced 5-10 fold compared to no treatment.

I do not have enough information from you with regards to “the clot is still there” to know actually what that means. Unfortunately, anticoagulation with warfarin alone often does not lead to complete recanalisation (i.e., reformation of the “bore” of the vein) and even if it does, the venous valves are often destroyed. This increases the risk of longer term problems in some people such as chronic venous insufficiency of the limb.



Michael says:

“

While doing the background reading for the response, I realised that some of my perceptions of warfarin management were incorrect. If anything, this made the entire exercise worthwhile.

”



May says:

“

I am still concerned about giving what is in essence medical advice over the internet. Although I think that Michael's reply is clear and responsible, it is the people who lack common sense who are going to get into trouble.

”

For your information, it is the body's own natural clot dissolving enzymes that break down the thrombus and recanalise the vein.

Assuming that it is safe to discontinue warfarin at this point (a decision that will be made by your specialist) there is an increased risk of DVTs in the future. The risk is about 5 times increased risk compared to baseline.

Unless there are some specific risk factors (including recurrent DVTs or pulmonary emboli, malignancy, inherited clotting disorders), it would not be standard practice to go onto life long warfarin after the first DVT.

There is some evidence that early thrombolytic (clot busting) therapy or even thrombectomy (i.e., surgery to remove the clot) may lead to better long term outcomes insofar as better vein patency and lower risk of chronic venous insufficiency. These therapies, however, are not without considerable risk and it is controversial as to whether the risks of these invasive therapies are worth the gain. In any case, they are not "routine" treatment for lower limb DVT (in Australia at least, though I'm fairly sure the situation is similar in the United Kingdom).

Reference article

(1) Feied C. Deep Venous Thrombosis [electronic article]. Emedicine. Last updated 20 March 2005.
<http://www.emedicine.com/med/topic2785.htm>

//

This post set the general guidelines for all other responses to "patient enquiries". An explicit statement to read the disclaimer (with a hyperlink) was placed at the top. A second "inline" disclaimer that was italicised was written immediately afterwards.

The post was written to be as clear as possible. Jargon was minimised, but at the same time, potentially ambiguous lay terms were avoided also.



Results of the website

Results of the website

Topics of focus

Under the four clinical domains identified during the planning stage (pg 8) of “The Medicine Box”, the following articles were written and published:

1. Intravenous fluid therapy

- Index: Intravenous fluid therapy
- “Maintenance” IV fluids in euvolaemic adults
- “Maintenance” IV fluids in euvolaemic children
- “Maintenance” IV fluids in euvolaemic neonates
- IV rehydration therapy in children
- Standard post-operative fluid management in adults
- IV fluid therapy in post-obstruction polyuria
- IV fluid therapy in post-operative oliguria

2. Mental Health

- Takedowns - Do not be a hero
- Dummies guide to the mental health legal system (NSW)
- GP Psych Support
- Antidepressants available in Australia
- Two minute overview of antidepressants
- How to start antidepressants
- Blood collection from external jugular vein
- Two minute overview of antipsychotics

- How to start antipsychotics
- How to use psychotropics in behavioural emergencies
- Psychotropic medications in the elderly
- Beware of serotonin syndrome
- How to manage difficult patients

3. Anticoagulation

- Index: Anticoagulation
- How to start warfarin therapy
- Anticoagulation for prevention of venous thromboembolism
- How to use unfractionated heparin
- How to use low molecular weight heparin
- How to reverse warfarin
- How to reverse unfractionated heparin
- How to reverse low molecular weight heparin
- How to stop warfarin for surgery

4. Dealing with stress / workplace conflict / medical administration / industrial issues

- Get to know your team
- Embrace the multidisciplinary team
- Get "on side" with the nurses
- Remember that you are the doctor
- Get medical indemnity
- Form a strong JMO/RMO association
- Don't let administration steal your unrostered overtime and ADOs

- How to manage workplace conflict
- Stress as a junior medical officer
- Doctor's Health Advisory Service

Analysis

Forty articles were written that were within the four key topics out of a total of 72, or, approximately 55%. The most popular articles (in September 2006) were as follows:

Top Posts for 30 days ending 2006-10-02 (Summarized)

Summarize: [7 Days](#) [30 Days](#)

2006-09-02 to Today

Title	Views
"Maintenance" IV fluids in euvolaemic ad	218
How to start warfarin therapy	125
How to reverse warfarin	106
How to use low molecular weight heparin	91
Index: Intravenous fluid therapy	90
How to change antidepressants	87
How to start oral hypoglycaemic therapy	38
Menopause – a summary of management	35
Dummies guide to the mental health legal	31
Anticoagulation for prevention of venous	30
Standard post-operative fluid management	26
Blood collection from radial artery	25
The sacred and the profane of medicine	22
IV fluid therapy in post-operative oligu	21
How to use unfractionated heparin	19
"Maintenance" IV fluids in euvolaemic ch	16
How to reverse low molecular weight hepa	10
Two minute overview of antidepressants	10
Index: Anticoagulation	9
IV rehydration therapy in children	9
Contraindications to metformin	8
IV fluid therapy in post-obstruction pol	8
Two minute overview of antipsychotics	7
Blood collection from external jugular v	7
How to manage workplace conflict	7

Top posts in September 2006

Nineteen of the 24 top articles (79%) were within the four key topics. Of the page hits, 904 out of a total of 1047 (86%) were within the key topics. That is, articles within the four key topics were significantly over-represented in visits.

There is, unfortunately, some degree of uncertainty to this value. Readers who view the website from the main page (i.e., from <http://vitalis.wordpress.com>) may read any number of articles without it being measured directly.

Review of website goals

There were many goals during the planning stage of “The Medicine Box”.

Planning and construction of the website with these goals in mind helped to provide direction.

Personal goals

To develop a quality website

Over the six months from the launch of “The Medicine Box”, over 70 articles were published under the general guidelines of the “article design format” (pg 9).



Michael says:

“

I was happy that the vast majority of goals were accomplished.

”



May says:

“

My goals for the project were achieved.

”

Feedback obtained directly, through e-mail or by comment on the website was overwhelmingly positive. An example of feedback (18 August 2006) is as follows:

// Dear May and Michael,

I am a 6th year UNSW student who is 8.5 weeks away from our exams. I stumbled across your website when I was googling about perioperative use of anticoagulation. I was absolutely aghast when I found this page.

HOW COME NO ONE HAS EVER TOLD ME ABOUT THIS PAGE?

I was both angry and thrilled.
I was angry because I didn't find out about this site earlier.
I was thrilled because the articles are just amazing, as if they were designed for the final year students to pass their exams.

I seldomly have the urge to expression my appreciation. However, I would really like to tell you guys how much I appreciate the articles you posted. You probably hear this all the time :) but I still have to say it "Thank you thank you thank you~"

I found a light house in the storm \ (^_^) /

//

Both May and Michael considered this objective satisfactorily achieved.

Website to be regularly visited and relevant

At the time of the report, "The Medicine Box" was receiving about 250 hits per day on average and had received over 15,000 hits.

We aimed to ensure the relevance of the content of the articles by being mindful of the "key topics". A de facto measure that this was achieved was in the over-representation of the articles

in the “key topics”. A secondary measure was that many key articles were highly ranked in Google.

Both May and Michael considered this objective satisfactorily achieved.

Learn website maintenance and management

It took significant planning, effort and time to develop “The Medicine Box” to its current state. Using a blogging system did significantly reduce the workload but both authors had to learn considerable technical skills.

Both May and Michael considered this objective satisfactorily achieved.

Personal education while writing clinical articles

Both authors found that it took a greater depth of knowledge to effectively communicate clinical information as medical education compared to otherwise competent clinical practice.

Both May and Michael considered this objective satisfactorily achieved.

Critically appraise clinical data

While reading research data to support and justify clinical practice guidelines, it was necessary to analyse the value and strength of the evidence base.

Where the evidence was unclear, or there were opposing points of view, we endeavoured to explain this in the article. The following is an example from the article “Contraindications to metformin”:

// It should be recognised that there is some controversy surrounding some of these guidelines [whether the listed contraindications are valid]. Although it is true that lactic acidosis is probably more common than actually recognised and diagnosed, it also means that it is less lethal.

As recognised by Nisbet et al., a large proportion of patients on metformin have contraindications to the medication. This fact was discussed in an opposing point of view in a commentary in the Canadian Medical Association Journal by McCormack, Johns and Tildes, who pointed out that despite this, lactic acidosis (fatal or otherwise) is extremely rare. The benefits in macrovascular endpoints in using metformin must be weighed against the very small risk and McCormack, et al., conclude that “the evidence at present suggests that the use of metformin in patients who are over the age of 80 years, have congestive heart failure or have renal insufficiency leads to a benefit that far outweighs the potential harm”.

//

Nevertheless, it was not pragmatically feasible to fully critically appraise the evidence for every article due to the constraints of time. In the end May and Michael considered this objective mostly achieved.

Reassess personal preconceptions and clinical practice

This came somewhat as an extension to the “personal education” goal mentioned previously. Reading research data to formulate and write an article often revealed deficiencies in one’s own prior clinical knowledge.

Correcting erroneous assumptions and henceforth improving clinical care was a very valuable part of this project.

Both May and Michael considered this objective satisfactorily achieved.

Consider the legal and ethical dimension

The legal and ethical aspects of the website were considered while the basic framework was set up. This was discussed earlier in the section on composing the disclaimer (pg 29).

Both May and Michael considered this objective satisfactorily achieved.

Satisfy the requirements of the “Professional Development Project” for SIGPET.

The objectives of the professional development project are as follows:

- Critical thinking skills
- Self assessment skills
- Research skills
- Teaching and learning skills

Both May and Michael considered this objective satisfactorily achieved and completed.

Audience-centric goals

The majority of these goals and their achievement have been covered to some degree previously. There were some difficulties in accurately measuring some of the outcomes given that Wordpress, the website host and blogging system used, had only crude website analytic tools included on their free account.

Clinically relevant articles for junior medical officers

As discussed previously, we feel confident that the articles published are clinically relevant to junior medical officers. Metrics used include the over-representation hits of the articles in the “key topics”, high ranking in Google as well as positive feedback.

Develop comprehensive articles on topics perceived to be areas of weakness

During the planning stage of the website, the four “key topics” were elucidated. Since the launch of “The Medicine Box”, forty articles have been published within these domains; slightly more than half of all the articles.



Michael says:

“

Although objective measures were not readily available, informal feedback of the website was very good.

”



May says:

“

I suppose that part of the review process involved imagining that I was an intern again and in that frame of mind, whether the website was useful. I believe that it is.

”

Both May and Michael considered this objective satisfactorily achieved.

Compare the target audience to the actual audience

As discussed in the previous analysis on “who is using the website” (pg 54), the actual readership of “The Medicine Box” was more international with a greater proportion of laypeople than expected.

Both May and Michael considered this objective satisfactorily achieved.

Review the effectiveness of the articles

Unfortunately, there was no simple method of reviewing the effectiveness of individual articles without feedback. Although several people sent feedback on the website in general, there was insufficient feedback on individual articles.

This objective was not satisfactorily achieved at the time of this report.

Obtain feedback and constructive criticism

Feedback from readers was encouraged throughout the website. This came through the form of direct contact, e-mail and comments posted on the feedback page and articles.

This feedback and criticism was used as an inspiration to develop further articles as well as to adjust some features on the

website. The implementation of one specific suggestion, for “printer friendly” pages for each article has been planned.

Both May and Michael considered this objective satisfactorily achieved.



Discussion

Discussion

Estimate of time spent on the project

Given the ambitious nature of the project, both May and Michael expected that a significant time investment would be required for a satisfactory result. The time spent, however, was somewhat offset by the fact that tasks relevant to the planning, construction, review and analysis of “The Medicine Box” were complimentary to learning goals and objectives of general practice training.

A rough estimate of the time involved in the project so far is as follows:

Planning Stage

Development of the idea, context and scope of the website	3 hr
Formulation of the topics of focus	1 hr
Draft article design format	1 hr

Construction Stage

Research on prospective blogging systems	3 hr
Setting up Wordpress accounts and basic website	1 hr
Prototyping design	2 hr
Customisation of sidebar widgets	2 hr
Create “About” page	2 hr
Create “Who are the authors” pages	2 hr

Research into disclaimers	1 hr
Create “Disclaimer” page	1 hr
Attempt to recruit authors	2 hr
Writing articles (avg 1.5 h per article x 72 articles)	108 hr
Publishing articles (avg 0.5 h per article x 72)	36 hr

Review and analysis

Website analysis	1.5 hr
Response to patient queries	2 hr
Response to feedback	1 h

Professional Development Project Report

Writing the PDP report	22 h
Proof-reading and editing	4 h
Publishing and printing	2 h

Total **197.5 hr**

As there were two principal authors to “The Medicine Box”, both May and Michael each spent approximately 100 hours on average over the six months from its launch; i.e., an average of 4 hours per week.

Effort was asymmetric over the six months with work concentrated during the launch of the website, as well as towards the end of the six months with the creation of this report.

Concluding comments

According to the metrics used by the authors, “The Medicine Box” was a success. The project achieved its goals. The result at the time of this report, six months from the website’s launch was a robust medical educational website targeted specifically at junior medical officers.

Somehow, we had managed to write and publish 72 articles in this period, an average of about 3 articles a week. Looking retrospectively, we are unsure how that was managed!

The project not only taught us how to critically appraise evidence and to summarise it into a concise format relevant to our peers (and by de facto, ourselves), but also about website design, authoring and management. As we move into the twenty-first century, expertise in online resources and participation in social media is expected to be increasingly valuable.

Both May and Michael envisage that they will continue to develop “The Medicine Box”.



Michael says:

“

*Was the effort worth it?
Absolutely.*

”



May says:

“

I view “The Medicine Box” as a proud achievement. It was a lot of work but I still get a buzz when people read my articles.

”

It is hoped that this report capably outlines the processes to which "The Medicine Box" was created. Furthermore, we wish to inspire the reader to consider developing online medical resources; and if that is the case, for this report to be a helpful and practical guide.