

Knowledge management in times of information
overload: keynote address 3
19th Congress of the European Association of
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Transforming the Digital World

Centre for Information Management

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 Loughborough
University
Centre for Information Management

Conflict of interest: nothing to disclose

Dr Graham Walton
11th March 2014

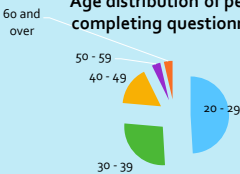
Background to small study used to inform Key Note Address

- Online questionnaire made available to hospital pharmacists and hospital doctors via personal contacts
- Administered in November and December 2013

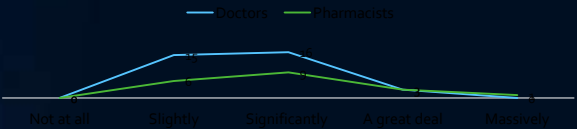
Number of hospital pharmacists and hospital doctors who completed online survey (55 in total)



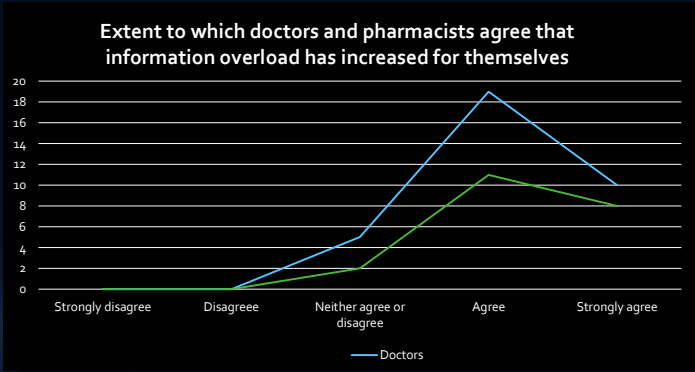
Age distribution of people completing questionnaire



Survey responses on extent to which information overload impacts on work of doctor and pharmacists



"Working up to 50+ hours per week, does not leave much time for organising and having function brain time to actually deal with information overload" Hospital pharmacist who completed survey



Knowledge management in times of information overload

- Historical perspectives on information overload
- Definition of information overload
- Causes of information overload
- Impact of information overload
- Approaches to overcoming information overload
- Concluding observations



Historical perspectives on information overload

"of making books there is no end; and much study is a weariness of the flesh"
Ecclesiastes 12:12 (c. 400 BC)

"distingit librorum multitudo (the abundance of books is distraction)"
Seneca (c. 100 AD)



Printers "fill the world with pamphlets and books that are foolish, ignorant, malignant, libelous, mad, impious and subversive; and such is the flood that even things that might have done some good lose all their goodness," Erasmus (c. 1500 AD)

"before the subject could be set in a clear and proper light, it was necessary to remove a great deal of rubbish" James Lund (1753) when writing about scurvy

"about 20,00 volumes... are published annually; unless this mass be properly arranged, and the means furnished by which its content is may be ascertained, literature and science will be overwhelmed by their unwieldy bulk" Annual report of the Smithsonian Institute (1852)

Information overload definitions

"Occurs when information received becomes a hindrance rather than a help when the information is potentially useful" (Bawden, 1999)

"Perception on the part of the individual ... that the flow of information associated with work tasks is greater than can be managed effectively, and a perception that overload in this sense creates a degree of stress for which his or her coping strategies are ineffective" (Wilson, 2001)



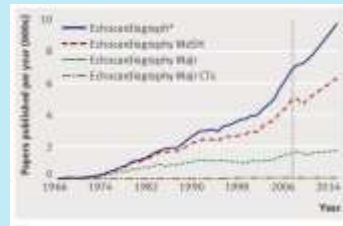
"Inability to extract needed knowledge from an immense quantity of information for one of many reasons" (Nelson, 1994)

"...demands on an individual's time for performing interactions and internal calculations exceeds the supply or capacity of time available for such processing" (Schick, 1990)

Causes of information overload: increasing amount of clinical information published (using diagnostic imaging in cardiology as example)

Between 1996 and 2009, 195106 papers on *diagnostic imaging* and *cardiovascular system*

- Estimated that could read 5 papers in hour for 8 hours a day, 5 days per week = capacity of 10,000 papers per year
- Reading all papers in echocardiography would take 11 years and 124 days
- By which time, another 82142 papers published
- In career would need to read 408049 papers (= 40 years and 295 days)

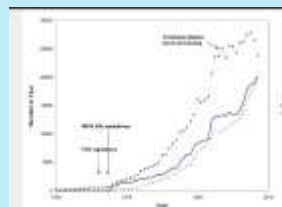


Fraser, A. G., & Dunstan, F. D. (2010). On the impossibility of being expert. *BMJ*, 341.

Causes of information overload: impact of evidence based practice?

The increase in the number of both systematic trials published and also systematic review demonstrates the implications of effective evidence based practice

- In 1977, there were 14 reports of systematic trials published per day
- In 2010, there were 75 reports of systematic trials as well as 11 systematic reviews of trials published per day



Bastian, H., Glasziou, P., & Chalmers, I. (2010). Seventy-five trials and eleven systematic reviews a day: how will we ever keep up?. *PLoS medicine*, 7(9), e1000326.
<http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.1000326>

Causes of information overload: e mails and social media: September 2012



Causes of information overload: e mails and social media: September 2013

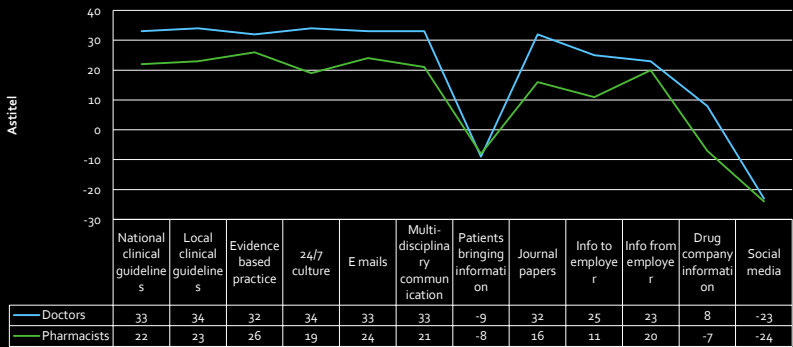


Other causes of information overload

- Quantity of information received from employer
 - Quantity of information to be sent to employer
 - Patients bringing in information from the Internet
 - Number of national clinical guidelines
- Number of local clinical guidelines
 - Drug company information
 - 24/7 culture
 - Communication in multi-disciplinary health care team

HALL, A. and WALTON, G., 2004. Information overload within the health care system: a literature review. *Health information and Libraries Journal*, 21, pp. 102-108

Perceptions of sample hospital pharmacists and hospital doctors on different causes of information overload (weighted)



Impact of information overload

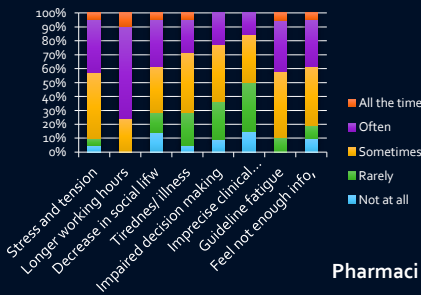
- Stress and tension
- Longer working hours
- Decrease in social life
- Tiredness and illness



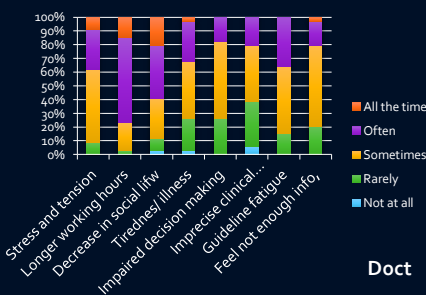
- Impaired decision making
- Using imprecise clinical judgement
- Guidelines fatigue
- Feel that do not have all the clinical information needed

HALL, A. and WALTON, G., 2004. Information overload within the health care system : a literature review. *Health information and Libraries Journal*, 21, pp. 102-108

Impact of information overload on sample hospital pharmacists and hospital doctors



Pharmaci



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Strategies used to overcome information overload

- Personal information skills
- Software/ hardware solutions
- Sophisticated IT system to deliver at point of need
- Effective time management



- Skills in dealing with e mails
- Prioritisation
- Access to clinical librarian

HALL, A. and WALTON, G., 2004. Information overload within the health care system: a literature review. *Health information and Libraries Journal*, 21, pp. 102-108

Managing information overload: what do the ostrich, pigeon, owl and jackdaw do?



Pigeon



Jackdaw



Ostrich



Owl

Smith, R. (2010). Strategies for coping with information overload. *BMJ*, 341.

Rare bird solution to information overload: clinical librarians

Ways in which clinical librarians help overcome

- Performing information searches
- Attending case conferences/clinical meetings
- Few appointments in NHS - "Rare Birds"



Need for clinical information specialists (clinical librarian)

"As there is a large amount of published and electronic information pertaining to clinical pharmacy... I struggle to know what information to retain. (Somebody to) enable me to determine the clinical relevance of new studies/information i.e. how does this impact on my practice as a pharmacist."



"We have a lot of investigative techniques and tools at our hand that we possibly use without enough clinical rationale. We gather a lot of information to make a decision, but this put us at risk of also collecting information that is misleading or irrelevant. Information needs to be tailored to the individual not blanket sent to all"

Clinical Librarians

- 1st Introduced 1974 Gertrude Lamb UK
- 1980s Rochester Study, Joanne Marshall USA
- 1980's Little progress in UK
- Mid 1990's onwards revival and new development work led by Harrison in UK
- 2000 Established substantive CL service



University Hospitals Leicester

<http://www.uhl-library.nhs.uk/clinicianlibrarian.html>

Web site for University Hospitals of Leicester Clinical Librarian Services (UK)

UHL Clinical Librarian Service
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Search for yourself

The Clinical Librarian (CL) Service at UHL Trust takes information services into the clinical setting, responding to information needs that arise there. Information professionals join the multidisciplinary team at ward rounds and in clinical meetings and work in partnership with health professionals, promoting a questioning and learning culture in the organisation. The CL Service thus offers a mechanism for getting research evidence into practice and for clinical governance at the trust to be supported.

The Commission for Healthcare Improvement (CHI) report on UHL NHS Trust identified the Clinical Librarian service as one that "other organisations in the NHS could learn from."

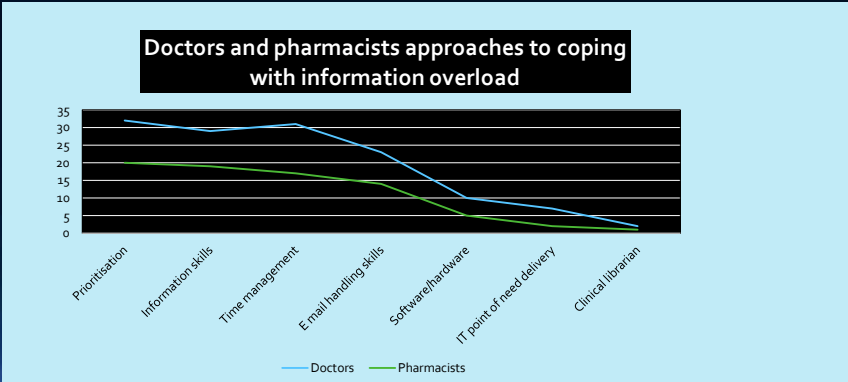
Select your UHL Clinical Librarian and request a search:

Anaesthetics, Critical Care and Pain Management	Physiotherapy	Urgency Email
Endocrinology	Gastroenterology	Search button
Haematology	Infectious Diseases	
Intensive Care	Medical Oncology	
Neurology	Obstetrics and Gynaecology	
Paediatrics	Radiology	
Rheumatology	Respiratory	
Skin	Speech and Hearing	
Transplant	Urology	
Vascular	Wound Care	

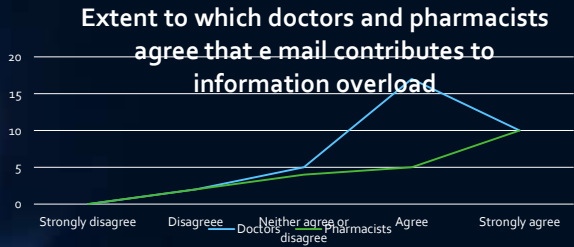
Trust only will corporate information needs to go through the Clinical Librarian Service.

Clinical Librarian-Led, Blogs & Comments

Ward Rounds & Comments
Clinical Librarian Bibliography
Clinical Librarian Service Documentation
Hypertension & Diabetes through University research
Clinical Librarian Impact & Impact
UHL Writing Club News
Current Research Bulletin



- E mail and information overload in hospital pharmacists and hospital doctors**
- “Email has now become the main form of communication, whilst it is quick and easy when returning from leave it can be easy to miss things as I currently get around 30 emails a day so when on leave for 2 weeks you return to an email box that can take 2 full working days to clear”
 -
 - “Main issue is information overload from email traffic”.



Paradox of not having the information needed when there is so much available

"Sifting through a vast amount of clinical information to find what is relevant and helpful."



"Trying to sort out the important information from the irrelevant. You've often spent several minutes reading it before you realise it's irrelevant"

"Too much & sometimes contradictory information / guidelines can lead to fear of acting quickly & decisively in clinical situations. They can individually be helpful but collectively cause confused decision making"

Will we ever solve the problem of information overload?

God in his heaven should be asked the question:

"God, will we ever solve the problem of information overload?"

And God will answer:



"Sure, but not in my lifetime."

Smith, R. (2010). Strategies for coping with information overload. *BMJ*, 341.



Acknowledgements for images

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