

## Drugref.org – why, when, and how



Free Drug Information – No Decision Support Without? – Melbourne, 11/12/2003 2003 – Dr. Horst Herb, coordinator <http://www.drugref.org>

## The ethical dilemma of licensing knowledge

- computerized decision support improves outcome and saves lives (?)
- any digital knowledge base can be replicated unlimited at little to no cost (?)
- Is it then ethical to withhold access to information artificially through fees for “intellectual property” ?
- Is it acceptable that people come to harm solely because somebody refuses permission to use a inexhaustible resource?
- If a society accepts such ethical principles, public funding of knowledge sources is inevitable

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## The new publishing paradigm

- The Internet makes it possible to publish world wide at almost zero cost
- The Internet allows almost effortless collaborative authorship
- Authors of scientific work such as therapeutic guidelines or other reference work usually don't get paid for their work
- Do we then still need the “man in the middle”?
- Is convenience a valid argument to restrict access to vital information?

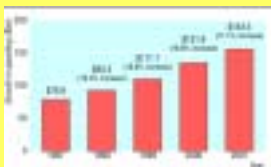
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## Even low cost costs something

- Funding options:
  - public
  - pharmaceutical industry
  - software vendors
  - end users (health professionals)
  - donations
- Cui bono?
  - if decision support improves outcome and saves costs, it would be reasonable to expect that the party that benefits most – the public health system - bears the lion share of costs.

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## Is industry sponsored information acceptable for decision support?

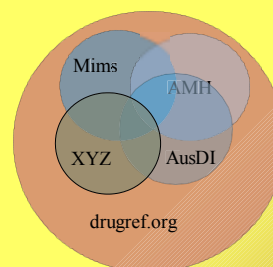


Since 1995, R&D staff of U.S. brand name drug companies have decreased by 2%, while marketing staff have increased by 59% [PhARMA Industry Profile 2000]

- Manufacturer knows his product, has conducted research
- but:
- Conflict of interest: marketing vs EBM
  - Does increase in drug spending improve outcome?
  - If not, does outcome suffer through resource misallocation?

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## One Size Fits All ?



- Currently, no available database suits all needs
- No database suits international needs
- no free database available

Drugref.org not only implements a free generic database, but also provides a royalty free unified interface to any of the available drug databases

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## The birth of drugref.org

- world wide need for unrestricted access to independent pharmaceutical reference information suitable for decision support
- The Linux phenomenon has demonstrated the power of collaborative volunteer effort
- The "Wikipedia" project has demonstrated the viability of large scale collaborative reference works (146430 articles since Jan. 2001)
- The "HIV Medicine handbook" has demonstrated that such efforts are possible in the medical domain

<http://www.wikipedia.org>  
<http://www.hivmedicine.com>

## Current state : functional

- Web site (Content management system) functional, soon 50,000 visitors, average > 200 visitors / day
- XML-RPC API for high level access frozen and published
- Normalized comprehensive database structure (> 50 tables) published and in use
- All ATC codes imported
- Import script for PBS data exists & working
- Import script for MIMS database exists & working (unpublished b/o "NDA" regarding their database structure)
- Drug interactions: XML-RPC based interface published; XML-RPC service available incl. source code for reference server

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## Current state : in progress

- Drug interactions: data import started, so far ~>150 evidence based interactions from Holbrook et al.
- Web interface : functional, but in the process of complete rewrite for better usability
- Peer review and revision control system: programming work started by RMIT group
- "Adopt a drug": work started (monographs) so far for Atenolol, Amoxicillin, Sertraline, Sildenafil
- Generic information: import from Mercy Ship formulary started
- Manufacturer provided CPI: negotiations started regarding cooperation for publish/subscribe infrastructure for automatic CPI redistribution

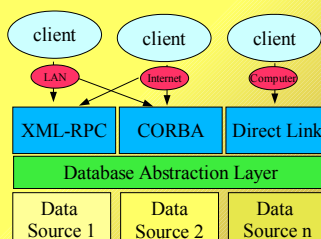
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## The Power Of Choice

- tagged structure allows accessing a variety of data sources through a common interface.
- allows using particular information from specified sources for specific purposes, as for example:
  - AMH for decision support,
  - MIMS for CPI browsing
  - generic drugref.org for travel medicine (medication available in other countries)
- common API allows peaceful coexistence of both free and proprietary data sources

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## Advantages of an abstract API



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## Power of flexibility

- Implementation as XML-RPC service creates absolute independence from programming language and platform
- Arrays of key:value pairs as functional parameters and return values allow unlimited forward and backward compatibility
  - initial agreement on minimal key set
  - gradual expansion as needed without breaking compatibility
  - users can extend without destabilizing system

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## Roadblocks



- Royalty fees
- Non disclosure agreements
- Misunderstanding of intellectual property issues
- Wrong business models for not-for-profit data providers (TG, AMH, ...)
- Inertia of stakeholders
- Standards (lack of)

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There is no problem ...

there is only blindness to solutions

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