Innovate: Cochrane future ecosystem for evidence synthesis

Chris Mavergames
Head of Informatics & Knowledge Management
Cochrane Central Executive
Acknowledgements

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This talk is about

How …

• finding evidence
• synthesising evidence
• disseminating evidence

… are changing?

What it means for you and our impact
Outline

• Emerging new ecosystem
• Project Transform
• Linked data
• New authoring infrastructure
• The wider context
• Summary
Background

- Current evidence processes very manual
- Machines and machine/human not optimally utilised
- Organising human effort not optimised
- Tools not yet fit for purpose and connected
- Data not "smart"
- Outputs not optimised for use and impact
- Solving "today's problems"
- Preparing for tomorrow's challenges
Direction of travel

- Less manual work, more focus on data curation, synthesis, and “reflection”
- Structured, “PICO-fied”/computable data
- Audit trails, provenance, re-useable data
- Machine/crowd assistance
- New models of participation
- Tools fit for purpose and integrated
- We produce more evidence; Outputs have greater impact
The emerging "ecosystem"
People + Process + Technology
optimized for the task
Future Evidence Ecosystem for Cochrane Review Production

**BUSINESS PROCESS LAYER**
- Identifying studies
- Working with studies
- Managing data
- Analysing data
- Writing up
- Publishing

**APPLICATION LAYER**
- Centralized search
- Evidence pipeline
- CRS Web
- Covidence/EPPI-R
- RevMan Web
- GRADEPro/GDT
- Archie

**DATA LAYER**
- APIs
  - Annotation API
  - Study API
  - Review API
  - Archie API

**DATA REPOSITORIES**
- Linked Data (PICO)
- Study Data
- Reviews Data
- ‘Archie’ Data
Cochrane operational projects

Changing how we store & manage our content
- Linked data
- PICO ontology
- PICO annotation

Improving production efficiency using technology
- Author support tools
- Text mining
- Machine learning

Changing the review production process
- Evidence pipeline
- Centralised search
- New production models

Increasing production capacity via new models of community participation
- Crowd sourcing
- Task exchange
Objectives

- Improve usability & utility of Cochrane data
- Production efficiency
- Quality & standardisation
- Revenue protection & generation
- Improve contributor engagement & experience
Project Transform
People + Process + Technology converge
Project Transform

4 components:

- **Evidence Pipeline**: uses machine learning and text mining to make study identification more efficient and semi-automated – including Centralized Search Service

- **Getting Involved**: uses crowdsourcing to get more people involved in tasks (URL coming soon!)

- **Task Exchange**: Platform for brokering tasks (taskexchange.cochrane.org)

- **Production Models**: New models of organising human effort in review production

- More info at cochrane.org/transform
Project Transform

Project Executive
Julian Elliott (Co-Lead), James Thomas (Co-Lead), Sally Green, Chris Mavergames, Steve McDonald, Anna Noel-Storr, David Tovey, Tari Turner

Project Team
Clive Adams, Lorne Becker, Linn Brandt, Rachel Churchill, Agustin Ciapponi, Gordon Dooley, Ruth Foxlee, Demian Glujovsky, Toby Lasserson, Geraldine Macdonald, Sue Marcus, Rupert McShane, Melissa Murano, Charlotte Pestridge, Daniel Perez Rada, Gabriel Rada, Jacob Riis, Ian Shemilt, Chris Watts, Karla Soares-Weiser, and IKMD developers

Project Component Co-Leads
Evidence Pipeline: James Thomas, Steve McDonald
Getting Involved: Anna Noel-Storr, Chris Mavergames
Task Exchange: Anna Noel-Storr, Chris Mavergames, Julian Elliott, Tari Turner
Production Models: Julian Elliott, David Tovey
Evidence Pipeline

“Intelligence” from:
• Completed reviews
• CRG specialised registers
• Search strategies
• Citation networks…
Centralised Search Service (CSS): What we currently do

We currently have two centralised searches in place: the PubMed ‘direct feed’ and the Embase feed in some records are directly fed into CENTRAL, whilst others are screened for eligibility by a crowd.
The CSS is about increasing the number of sources searched in the way that Embase is searched.

Candidate sources: ClinicalTrials.gov, CINAHL, LILACS, and Korea Med.

The CSS in close partnership with Project Transform’s Pipeline and Getting Involved components.
Where we’re going
Why?

Multi-source searching per review/per review group to identify reports of randomised trials

Time spent searching
Time spent screening
Duplication of effort
Why?

Endgame: Just search CENTRAL

Time saved searching
Time saved screening
Reduction in duplication of effort
Zinc and vitamin A supplementation fails to reduce sputum conversion time in severely malnourished pulmonary tuberculosis patients in Indonesia

Abstract
Background: A previous study showed that combination of zinc and vitamin A reduced sputum conversion time in pulmonary tuberculosis (TB) patients.

Objective: We studied the efficacy of which single micronutrient contributed more to the sputum conversion time.

Methods: In a double-blind randomized controlled trial, newly sputum smear positive pulmonary TB patients were assigned randomly to receive zinc, vitamin A, zinc + vitamin A or placebo on top of TB treatment. Patients were asked to deliver their sputum on weekly basis to measure positivity of the bacteria. Nutritional status, chest x-ray, hemoglobin, C-reactive protein (CRP), retinal and zinc level were examined prior to, after 2 and 4 months of treatment.

Results: Initially, 380 patients were enrolled, and 255 finished the treatment. Most patients were severely malnourished [mean BMI 16.5 ± 2.2 kg/m²]. Patients in the zinc + vitamin A group showed earlier sputum conversion time [mean 11 weeks] compared with that in the other groups, however the difference was not significant. No benefit could be demonstrated of any of the used supplemented clinical nutrition, chest x-ray, or laboratory findings.

Conclusions: This study among severely malnourished TB patients did not confirm that single or combined supplementation of zinc and vitamin A significantly reduced sputum conversion time or had other significant benefit.
You can make a difference

Become a Cochrane citizen scientist. Anyone can join our collaborative volunteer effort to help categorise and summarise healthcare evidence so that we can make better healthcare decisions.

Give it a try

Just 60 seconds a day can make a difference

In the last 20 years research output has grown exponentially making it really difficult to keep up with the evidence. As a Cochrane citizen scientist you would be helping...
You can make a difference

Become a Cochrane citizen scientist. Help us and our collaborative volunteer efforts help category and summarise healthcare research so that we can make better healthcare decisions.

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A bigger team than you think
Connect with the global Cochrane community to get your review done more quickly

Post a task  Contribute skills

What is Task Exchange?
Task Exchange is a platform that connects people who need help with their Cochrane reviews with people who have the time and expertise to help.

Here's how it works...

Work with experts
Browse our list of experts when you need help. Build a profile to be seen by those looking for help.

Post a task
Let people know what help you need and when you need it. Find people with the right skills for your review.

Respond to a task
Find a task that matches your expertise and availability. Contact the task author directly to show your interest.
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Respond to a task
Find a task that matches your expertise and availability. Contact the task author directly to show your interest.

Launched!

taskexchange.cochrane.org
Exploratory phase complete (26 interviews and >100 survey responses) & report drafted; identified opportunities to improve production models in a range of ways including opportunities to:

- clarify roles and expectations of authors and Cochrane Review Groups;
- ensure continuity and consistency of input into reviews;
- actively coordinate the review process;
- centralise some review production steps;
- break reviews into smaller ‘chunks’;
- improve approaches to capacity building and information sharing around review production

Now working on developing pilot projects to implement some of these ideas.
Target 6, Goal 1 – 2016 Strategy Targets

6. Efficient Production: Transform project

We will improve the way people, processes, and technologies come together to produce Cochrane content by releasing the first phase of improvements from our Transform project, including five versions of the commissioning platforms: Task Exchange and Getting Involved, and the launch of the Learning Evidence Pipeline for study identification, and piloting new production models.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Institutions of Success Delivered by the Central Executive Team</th>
<th>Institutions of Success Delivered by Cochrane Groups</th>
<th>Delivery Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transform will address four key challenges in content production through four project components.</td>
<td>Evidence Pipeline</td>
<td>Getting Involved (Cochrane Council)</td>
<td>Dec 2016</td>
</tr>
<tr>
<td>1. Evidence Pipeline</td>
<td>- Identify and prioritize evidence research in a timely and replicable way.</td>
<td>- Launch of “beta” platform for initial conception and in use by early adopters.</td>
<td></td>
</tr>
<tr>
<td>2. Getting Involved</td>
<td>- Developing pathways for potential new contributors.</td>
<td>- Two tools are available on platform.</td>
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<td>3. Task Exchange</td>
<td>- Increasing the efficiency of working collaboratively.</td>
<td>- Launch of “beta” platform and in use by early adopters.</td>
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</tr>
<tr>
<td>4. Production Models</td>
<td>- Ensuring our content is relevant and up-to-date.</td>
<td>- Use by new Cochrane contributors.</td>
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</tbody>
</table>

Evidence Pipeline:
- Collaborating with CIs.
- Development of Tolu platform and in use by 10-20 CI nodes.
- Initial use by computer science community.

Getting Involved (Cochrane Council):
- Launch of “beta” platform for initial conception and in use by early adopters.
- Two tools are available on platform.
...breathe...
Linked Data Project: Update
PICO Annotation and PICOfinder
Linked Data: Overarching goals

- Enrich our content and data with metadata using controlled vocabularies (SNOMED CT, etc.)
- Construct knowledge models and structures (ontologies) that will allow re-use of this metadata (annotations) for both downstream (dissemination) and upstream (production) use
- Become more interoperable with other projects, products, datasets, and systems
- Improve production (“smarter data”) and dissemination of evidence (“unlocking the evidence”)
- http://linkeddata.cochrane.org
Existing Cochrane databases

Archie

CRS
A new Cochrane PICO database

PICO annotations:
- Reviews (question, studies, analyses)
- CRS/CENTRAL
- Data sets (Covidence, EPPI-R)
PICO Annotator
Annotating Cochrane Review content
Methods

Criteria for considering studies for this review

Types of studies

Randomised controlled trials (RCTs) evaluating and comparing antibiotics to a placebo, or different classes of antibiotics for acute sinusitis, and reported in full-text.

We included trials having a sample size of at least 30 participants with acute maxillary sinusitis. This is to guarantee that data in individual studies are as unbiased as possible. Also in very small samples, many estimators are known to be sensitive to variation.

We excluded studies reported only as abstracts because there is evidence that there are discrepancies between data reported in the abstract and the final published full report, and that information on trial quality indicators is often lacking (Chokkalingam 1998, Hopewell 2006). Thus we required full-text reports to ensure reliable data extraction and assessment of risk of bias. To diminish the risk of publication bias, we attempted to contact authors of potential abstracts to obtain information as to whether a full-text report of the study (unpublished or published) was available.

Types of participants

We included trials with adults or trials that separately reported data on subgroups of adults. We accepted adolescents (at least 12 years old) if less than 20% of participants were under 18 years of age.

Acute maxillary sinusitis was defined by:

1. a history of URTI lasting seven to 30 days, with at least two clinical signs or symptoms (sinus pain at palpation, postnasal drip, purulent nasal discharge, nasal obstruction, unilateral facial pain, maxillary toothache, impaired sense of smell); or
2. radiography, ultrasound or other imaging; or
3. bacterial culture from a sinus secretion obtained by puncture or endoscopy and identified as being...

Studies where the clinical diagnosis was not clearly described, diagnosis of acute maxillary sinusitis should be confirmed in at least 80% of participants by imaging or culture.

We included trials with a mixed population of acute (symptoms less than 30 days) and non-acute sinusitis or acute exacerbations of chronic sinusitis if they separately reported data on the subgroup with acute sinusitis, or if at least 80% of participants had acute sinusitis.

We excluded trials that focused on patients with complicated sinusitis such as pansinusitis or frontal sinusitis (or solely ethmoidal or sphenoethmoidal sinusitis), or infections...
Step 4: Outcomes

- Psychological or clinical
- Mortality
Methods
Criteria for considering studies for this review

Types of studies
We included randomised controlled trials (RCTs) with a parallel-group design of at least 12 weeks’ duration. We did not exclude studies on the basis of blinding. We excluded cross-over trials, as we were looking at long-term effects including adverse events.

Types of participants
We included RCTs that recruited participants with a clinical diagnosis of COPD based on the following (GOLD 2013):

1. Forced expiratory volume after one second (FEV₁)/forced vital capacity (FVC) ratio < 0.7, which confirms the presence of persistent airflow limitation.
2. Several of the following key indicators:
   - Progressive and/or persistent dyspnoea (breathlessness);
   - Chronic cough;
   - Chronic sputum production;
   - History of exposure to risk factors (tobacco smoke, smoke from home cooking and heating fuels, occupational dusts and chemicals).

We excluded RCTs in which participants had to have asthma as well as COPD to be included.

Types of interventions
We included studies in which participants were randomly assigned to receive the following:

1. Salmeterol 80 µg or placebo twice daily.
2. Formoterol 12 µg or placebo twice daily.
3. Formoterol 24 µg or placebo twice daily.

We included studies that allowed concomitant short-acting bronchodilators, provided they were not part of the trial treatment under study. We did not include studies in which most participants were receiving other COPD treatments.

Types of outcome measures
Primary Outcomes

PICO Annotator
Population:
- Male and Female, Young Adult 19–24 years and Adult 19–44 years and Middle Aged 45–64 years: Chronic Obstructive Airways Disease;

Interventions:
1. [Pharmacological] Salmeterol;
2. [Pharmacological] Formoterol;

Comparators:
[No active treatment] Placebo;

Outcomes:
1. Quality of Life - Quality of life;
2. Physiological or clinical - Severe COPD exacerbations;
3. Physiological or clinical - Moderate COPD exacerbations;
4. Mortality - Mortality; all-cause;
5. Adverse events - Non-fatal serious adverse events; all-cause;
6. Physiological or clinical - Lung function;
7. Withdrawals or dropouts from study - Withdrawals from study treatment;
Goal 2, Target 7 – 2016 Strategy Targets

<table>
<thead>
<tr>
<th>Goals</th>
<th>Indicators of success delivered by the Central Executive Team</th>
<th>Indicators of success delivered by Cochrane Groups</th>
<th>Delivery deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. User-Centred Design and Delivery</td>
<td>Cochrane PICO and short summaries of a clinical question need to be clearly defined.</td>
<td>TSCs are familiar with linked data tools and annotation tools.</td>
<td>Dec 2016</td>
</tr>
<tr>
<td>2. User-Centred Design and Delivery</td>
<td>An annotation tool has been adopted in the Cochrane Library and Dissemination.</td>
<td>TSCs are trained in annotation and there is engagement with the CDT on governance of metadata.</td>
<td>Dec 2016</td>
</tr>
<tr>
<td>3. User-Centred Design and Delivery</td>
<td>Scoping of case APIs is in place for internal business cases and data needs.</td>
<td>TSCs are collaborating with external organizations for additional data.</td>
<td>Dec 2016</td>
</tr>
</tbody>
</table>
Goal 2, Target 7 – 2016 Strategy Targets

Cochrane Information Specialists
PICOfinder demo interface
Exploring, filtering, and visualizing Cochrane evidence using PICO
https://data.cochrane.org/pico-finder
### Population

<table>
<thead>
<tr>
<th>condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
</tr>
<tr>
<td>Dementia</td>
</tr>
<tr>
<td>Dementia Due To Alzheimer's Disease</td>
</tr>
<tr>
<td>Acute Asthma</td>
</tr>
<tr>
<td>Mild Cognitive Impairment</td>
</tr>
<tr>
<td>Asthma</td>
</tr>
<tr>
<td>Vascular Dementia</td>
</tr>
<tr>
<td>Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>Elderly</td>
</tr>
<tr>
<td>Mixed Dementia</td>
</tr>
</tbody>
</table>
### Cochrane Database of Systematic Reviews

#### Vascular Dementia
- Operation On Vascular Graft
- Vascular Surgery Procedure
- Peripheral Vasodilators
- Peripheral Vasodilators
- Selective Calcium Channel Blockers With Mainly Vascular Effects
- Valproate
- Other Peripheral Vasodilators
- Vaccines
- Various
- Vaccines
- Viral Vaccines
- Pneumococcal Vaccines
- Bacterial Vaccines
- Valiation Therapy

#### CD007788 (v2) Ginseng for cognition
- Dementia
- Male and Female
- Ginseng Preparation
“Enabling” technology

- New interfaces and products for Cochrane evidence such as:
  - Dynamically-generated topic portals and interfaces 😊
  - Improved discoverability 😊
  - Comparator tools 😊
  - APIs for third-party systems and data feeds

- Facilitating:
  - Data re-use and repurposing 😊
  - Review production efficiency and intelligence 😊
  - Living sys reviews into living guidelines 😊
  - Creation of standards (PICO) for interoperability 😊
Annotate with anyone, anywhere

Our mission is to bring a new layer to the web. Use Hypothesis to discuss, collaborate, organize your research, or take personal notes.

Hypothesis announces a coalition of over 40 scholarly organizations bringing annotation to all knowledge. Learn more
Open Science Prize: ContentMine and Hypothes.is teaming up for proposal

10th February 2016, by philipw

We are pleased to announce that we’re teaming up with Hypothes.is to put forward a proposal to the Open Science Prize to mine and annotate the biomedical literature – using and producing loads of open data along the way.

A growing number of open data resources are either directly cited in the biomedical literature or have an indirect link to the content of articles or other research outputs. Unfortunately these links are often not visible to readers and if the article is behind a paywall they could be invisible to the vast majority of the population, including many researchers.

We plan to automatically mine and openly annotate the biomedical literature with identifiers for data such as genes, species and many-database citations. ContentMine will extract the facts and Hypothes.is will display them on the online document. Through this, we’ll create an index of facts as open data that can be combined with manual annotations from the community of hypothes.is and ContentMine users. This development and linking of two-existing early-stage services will lead to a powerful and rich user opportunity to examine facts in context and look for connections and correlations centres around identifiers.

In the spirit of openness, we’re discussing the proposal on discuss.contentmine.org and collaboratively drafting via Google Docs. We’re appreciative of any volunteers who would like to help.

You can get involved by:

• Joining the discussion thread here
• Contributing to the proposal draft
• Joining the ContentMine github community
...refresh...
New authoring infrastructure
CRS Web, RevMan Web, Covidence, EPPI-R
Overarching goals

- Browser-based tools
- Connected by APIs
- Using common data exchange formats
- Connected by "the glue" (PICO metadata)
- Facilitating:
  - Data provenance, audit trails, and re-use/reproducibility
  - Increasing efficiency
  - Better Ux
The CRS is software for managing reports of trials. CRS Web is the browser-based version of the CRS desktop app. Key features are:

- Leverages the power of the CRS-D, the backend database of trials which links together all reports of trials and associated metadata.
- Provides a rich interface to allow easy discovery of all trials found by all review groups, making study identification for Cochrane review easier and faster and reducing duplication of effort.
- Automatically updates and alerts users when a trial’s status changes.
- Integrated with RevMan Web, Covidence, EPPI, Cochrane Crowd, and other Cochrane projects.
CRS Web dashboard page
### CRS Web search results page

**Beta release:** June 2016

#### Search history
- psoriasis
- arthritis
- eczema
- psoriatic arthropathy

#### Record listing
<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Author</th>
<th>Year of publication</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Achieving target glycemia in older patients with type 2 diabetes is a challenge in clinical practice. In clinical trials, patients are managed by protocols to achieve glycemic goals, but information from these protocols has not been readily transferred to the clinic. Here, we sought...</td>
<td>Drake D // Seabist E</td>
<td>2013</td>
<td>Diabetes</td>
</tr>
<tr>
<td>2</td>
<td>Augmenting ssris with an alpha4beta2 antagonist: a randomised, placebo-controlled trial</td>
<td>Angvari G // Mags</td>
<td>2012</td>
<td>International</td>
</tr>
<tr>
<td>3</td>
<td>The beneficial effect of metformin on body weight in patients with type 2 diabetes: a systematic review and meta-analysis</td>
<td>Zhu D // Yang A</td>
<td>2013</td>
<td>Diabetes</td>
</tr>
<tr>
<td>4</td>
<td>Blisibimod, an inhibitor of B cell activating factor, in patients with rheumatoid arthritis: a phase 2, randomised, placebo-controlled trial</td>
<td>Reine RA // Scheinberg D</td>
<td>2012</td>
<td>Arthritis and Rheumatology</td>
</tr>
</tbody>
</table>

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**C Author**

**C Year of publication**

**C Source**

**C Volume**

**C Pages**

**C Language published**

**C Abstract**

Achieving target glycemia in older patients with type 2 diabetes is a challenge in clinical practice. In clinical trials, patients are managed by protocols to achieve glycemic goals, but information from these protocols has not been readily transferred to the clinic. Here, we sought...
RevMan Web

RevMan Web is a browser-based version of RevMan.

The primary objectives are to:

- Eliminate local installation by users.
- Link and integrate with other tools: Covidence and CRS Web.
- Improve and modernise the user interface.
- Enable Cochrane to quickly adapt review methods and new content.
- Facilitate better audit trails and provenance.
Requirements for RevMan Web

- Installation free
- Works offline
- Mobile/Tablet friendly
- Multi-user
- Tracks provenance
- Secure
- Modular
- Facilitates data consistency
- Fast/performant
- Supports internationalisation

RevMan Web will co-exist with RevMan 5 during the rollout of the beta and 1st generation versions.
Expected Release Dates

Colloquium Version
27 September 2015

Beta
Start 2017
End 2016

1st Generation

2nd Generation
2018

Done!😊
Expected Release Dates

Colloquium Version
27 September 2015

Done!

1st Generation
Start 2017

Beta
End 2016

Enhanced Cochrane Library launch

2nd Generation
2018

2nd Generation
Beta release: late 2016
Covidence

Date created
15 March 2016

Format
Not applicable

Useful for...
Authors
Editors
Trainers
Trials Search Co-ordinators
Cochrane Group staff

Description
Covidence is one of Cochrane’s recommended tools to support you in some of the most labour-intensive stages of your systematic review. Covidence allows your team to upload search results, screen abstracts and full text, complete data collection, conduct risk of bias assessment, resolve disagreements and export data into RevMan or Excel. We think you’ll find it easy to use and genuinely helpful in easing the workload. Covidence is free to use for all Cochrane authors, and you can log in using your Archie account.

Click here to use Covidence

Support is available to help you get started with Covidence:

- Training: A series of webinars is running during 2016, including regular introductory sessions as well as forum discussions for users to ask questions and learn some more in-depth features. Check our workshops schedule for upcoming webinars, or see a recording of a past webinar.
Description

EPPI-Reviewer 4, developed by the EPPI Centre at University College London, is a recommended web-based tool for Cochrane authors to support the development of your review from study screening through data collection, analysis and synthesis. Note that EPPI-Reviewer is suitable to support complex reviews including narrative and qualitative synthesis. Authors working on more straightforward reviews may prefer to try Covidence, Cochrane’s main recommended screening and data collection tool.

EPPI-Reviewer is free to use for Cochrane authors, and you can log in using your Archie account details. Full details on how to log into EPPI-Reviewer are provided below.

Click here to use EPPI-Reviewer

EPPI-Reviewer can help your team manage all stages of the process from bibliographic management, screening, coding and right through to synthesis, including meta-analysis, narrative and qualitative synthesis, which can then be exported for use in RevMan to complete your review for publication. Recent additions to the software include text
### Target 5, Goal 1 – 2016 Strategy Targets

**Efficient Production**

<table>
<thead>
<tr>
<th>Indicator of success</th>
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<th>Indicators of success delivered by Cochrane Groups</th>
<th>Delivery deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key to ensure Cochrane and the CRD online, which will enable further integration with Cochrane, Translome Tools, 1PMReviewer and other browser-based tools, ensuring a seamless experience for member entities and adequate review production in Cochrane.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Cochrane has invested substantially in Cochrane to foster the primary, default tool for systematic review software and data extraction. The use of Cochrane and 1PMReviewer for the workflow will give great efficiency and transparency in the pipeline.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cochrane (default) or 1PMReviewer (of complex centres) are in use on more than 80% of new Cochrane reviews.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A plan has been agreed for the transition to Neuvir Web (in 2011) and phase-out of the Neuvir 1 desktop version.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CRD experts have committed to the Neuvir 1 desktop transition plan.</td>
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</tbody>
</table>
...nearly there...
The wider context
Cochrane remaining competitive in an expanding marketplace of evidence
"Next generation" Cochrane?

- Big data
- “Diverse” data
  - IPD (Individual Patient Data)
  - ~omics
  - Device, systems
  - Data from different study designs
- Activity to date:
  - Meetings
  - Various conversations happening but nothing definitive yet
  - Discussions mainly what role Cochrane should play
  - Ida Sim Cochrane lecture in Vienna
"Next generation" Cochrane

- How can we move towards…
  - “living” systematic reviews
  - and dynamic curation of evidence in real-time
  …that can incorporate methods and data from "diverse" sources?

- Wellcome/IoM/Harvard MRCT project
  - Project to build a clinical trial data sharing platform
  - Will include both aggregate/summary data and IPD
  - Analytical tools, mechanisms for de-identification, privacy
  - Meeting next week in London at Wellcome

- OpenTrials

- Cochrane has a role to play (lead, partner, other options?)
IBM Watson Health Cloud

Insights
Capable & Behavioral Analysis

Data
Structured & Unstructured

Solutions
IBM & Enterprise Solutions

What's around the corner

Episode 2

Prescription: Watson
How healthcare can benefit from Watson's unique capabilities

→ Read this article at IBM Research
"The Yelp of medicine is here"
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Postscript
Impact: Cochrane and NICE
Engagement and collaboration
Cochrane and NICE

• Talk at NICE's Joint Information Day last week
• Several meetings to date on collaboration between NICE's linked data work and Cochrane's
• *HENCE Forward* EU bid
• Ongoing discussions via groups like #GINTech and #CochraneTech
HENCE Forward (EU bid)

Main concepts are:

• We need ALL research to be described using standard schema in order for it to be useful for decision-making (e.g. The PICO ontology)

• The task of doing this at scale exceeds human (there’s too much work) and machine (too much judgement needed) capacity

• We therefore create an infrastructure which automates as much as possible, but utilises human input where needed

Partners cover evidence production, evidence utilisation, and technology R&D and implementation
HENCE Forward EU bid

WP6: engagement & dissemination

WP4: connecting next generation medical knowledge with clinical practice

WP1: next-generation human-machine computation: system requirements, coordination and evaluation

WP2: knowledge curation through next generation automation

WP3: knowledge curation through next generation text mining

WP5: next generation data models, standards and infrastructure

Our understanding of knowledge curation (how to curate knowledge better)

Knowledge about human health & care (how to improve people’s health)

WP7: project management
**Summary**

- People + Process + Technology are converging in new and innovative ways to help us further our mission.
- We are ramping up the machines, platforms, and structured, linked data (tech).
- Change management: we are asking for you all (people) to adapt (process).
- Helps Cochrane to scale.
- We can produce more high-quality evidence for health care decision making.
- Tackle tomorrow’s challenges so we remain competitive and relevant.