Tech enablers for living evidence - Covidence & MAGICapp

Living Evidence Network “state of the science” webinar

18 Sep 2019

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Community Manager, Covidence

Thomas Agoritsas
MAGIC Evidence Ecosystem Foundation Board Member,

Trusted evidence.
Informed decisions.
Better health.
Living Evidence Network
Tech Enablers for Living Evidence II

Anneliese Arno, Community Manager at Covidence
Contents

• What is Covidence?
  • Background
  • Current capabilities

• How does Covidence support Living Evidence?
  • Now
  • Soon
  • Later
What is Covidence?

• Covidence is an online platform for systematic review production
• Our vision is a world shaped by the best evidence possible
• Our mission is to create tools to make systematic reviewing faster, easier, and more enjoyable
• Part of Cochrane toolkit
What can I do in Covidence?

- Covers the systematic review process from screening through the beginning of meta-analysis
- Currently can import EndNote formatted XML, or RIS text files
- Currently can export to RevMan 5 or to Excel
How does Covidence support Living Evidence?

• Reduction in time to create a review: average 35% efficiency gain
• Supporting review training through partnerships
  • Early career researchers
  • Low and Lower-middle income country partnerships
How does Covidence support Living Evidence?

• Available now:
  • Study triage
  • RCT classifier

• In progress:
  • Living PRISMA
  • CRS importer
  • RevMan Web integration

• Longer term ideas
Available now
Some context

• All Covidence reviews have three main stages: Title/Abstract Screening, Full Text Review, and Extraction
• During screening, customised tags may be added to studies
Study Triage

• Problem: researchers duplicating effort by having to screen each question separately

• Solution: allow for studies to be included in multiple reviews simultaneously

• Aim: increased data re-use
Study Triage

Tags present during Full Text Review

→

Included vote

→

Study imported to destination review(s)
Study Triage

Currently in use for several living guidelines

To access:
- Contact support@covidence.org
- Name of review
- Names of destination reviews
RCT classifier

- Problem: researchers spend too much time on screening

- Solution: Integrate Cochrane-developed machine assistance into Covidence screening

- Aim: faster screening
  - Previously demonstrated at 60-80% reduction in effort
RCT classifier

- Uses natural language processing to assign score to studies
- Covidence creates “RCT” tag and applies it to studies with a score of 99% or higher
- Tags can be used to filter screening lists
- All voting still done by user
RCT classifier

• Currently active on several reviews

• To access:
  • Contact support@covidence.org
  • Name(s) of review(s)
In progress
Living PRISMA

• Problem: reviewers are unsure of rate of eligible study publication

• Solution: store data over time relating to PRISMA flowchart

• Long term aim: allow users to view date-specific PRISMA
Living PRISMA: current state

• Covidence collects information on when citations are imported down to the day
• This data is stored in a spreadsheet
• To access this, please contact support@covidence.org
CRS import

- Problem: users are unaware of new studies to screen
- Solution: better integration between Covidence and CRS
- Long term aim: more timely screening updates
RevMan Web

• Problem: reviewers can’t easily export data to existing reviews

• Solution: integration between Covidence and RevMan Web

• Aim: increased visibility of currency of data
Longer term ideas

• Covidence as a platform for collaboration
• Sharing of data and work
• Increased visibility of ongoing research
• More machine learning
• Crowd sourcing
Thank you!
Using the MAGICapp to enhance the Evidence Ecosystem

Thomas Agoritsas, MD, PhD
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Department of Medicine, University Hospitals of Geneva Switzerland
Assistant Professor,
Department of HEI, McMaster University

Reproduced from cover page of JAMA, Users’ Guide to the Medical Literature, 3rd ed.

Tech enablers for living evidence II

Sept 17, 2019
Improving patient care through a trusted evidence ecosystem

MAGIC is a non-profit foundation, our goal is to increase value and reduce waste in healthcare through a digital and trustworthy evidence ecosystem. MAGICapp is our core platform in the evidence ecosystem bringing digitally structured guidelines, recommendations and decision aids to patients and clinicians.
Improving patient care through a trusted evidence ecosystem

MAGIC is a non-profit foundation that develops a trusted evidence ecosystem. MAGIC’s evidence ecosystem brings together evidence recommendations and data from the world’s leading evidence and research institutions. MAGIC is an independent evidence engine for policymakers, health managers, researchers, and the healthcare community to build a better future for patients worldwide.

Team

Per Olav Vandvik, M.D., Ph.D.
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CTO / Board Member

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CMO / Board Member

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Researcher

Irbaz Bin Riaz, MD, MS
Researcher

http://magicproject.org
MAGIC authoring and publication platform (MAGICapp) - for guidelines and evidence summaries - is developed through our research and innovation program.

The platform allows authors to write and publish their guidelines and evidence summaries in a highly structured fashion, using the GRADE methodology, new technology and a host of recent developed frameworks. MAGICapp is a web based collaborative tool that does not require any software installation and allows publication on all devices.

All researchers in MAGIC are practicing physicians devoted to evidence-based medicine and clinical epidemiology. We are also members of the GRADE working group and know from first hand experience that writing a guideline is a complex task and that many struggle with the methodology and the processes around.

MAGICapp includes features to guide you through the process of writing and publishing a guideline. A lot of research and effort has gone into improving the user interface of the platform - both for authors and readers.
I have no financial conflict of interest in relation to this presentation.

My intellectual conflict of interests:

- Board member of the MAGIC organization [http://magicproject.org](http://magicproject.org)
- Member of the GRADE Working Group [http://www.gradeworkinggroup.org](http://www.gradeworkinggroup.org)
- Deputy editor ACP journal club – McMaster PLUS Evidence Alerts
- Co-founded the BMJ RapidRec [http://www.bmj.com/rapid-recommendations](http://www.bmj.com/rapid-recommendations)
- Living Evidence Network Steering Group
Cochrane and MAGIC announce partnership

Cochrane and MAGIC (http://magicproject.org/) are delighted to announce the launch of an official partnership, aimed at supporting and further strengthening the use of health evidence within the context of a digital and trustworthy evidence ecosystem for health care.

MAGIC (formally known as the MAking GRADE the Irresistible Choice (MAGIC) organization) is a non-profit research and innovation programme set up to make evidence summaries and recommendations that work for clinicians at the point of care and to facilitate shared decision-making with patients. Established in 2010, the MAGIC project has, among a number of other initiatives, developed the MAGICapp, a web-based platform for preparing guidelines using structured data systems and validated methods.

Cochrane and MAGIC wish to continue a history of working together by establishing a formal partnership to harmonize the flow of data from systematic reviews to guidelines development and decision support systems. To this end, the organizations have signed a Memorandum of Understanding to structure and focus our collaborative work for the next three years.

Mark Wilson, Cochrane CEO, said: ‘We are delighted to be deepening our relationship with MAGIC through this new partnership. Cochrane and MAGIC share a passion for innovation, collaboration and commitment to making health and healthcare evidence more accessible and usable. I’m excited that by
The Evidence Ecosystem

- Evidence synthesizers
- Evidence disseminators to clinicians
- Evidence disseminators to patients
- Evidence producers
- Evidence evaluators & improvers
- Evidence implementers

- Development of sound methods
- Tools and platforms
- Digitally structured data
- Patient Involvement
- Culture for innovation and sharing
- Training

Data flows through the ecosystem, ensuring evidence is disseminated effectively to clinicians and patients.
Evidence disseminators to clinicians

Evidence synthesizers

Evidence producers

Evidence evaluators & improvers

Evidence implementers

Development of sound methods

Coordination and support

Culture for innovation and sharing

Tools and platforms

Patient involvement

Training

MAGIC app

The Evidence Ecosystem
Full digitized platform

- Imports:
  - RevMan
  - Covidence
  - Pubmed
  - Bioportal
  - Epip-reviewer
  - Endnote

- Database:
  - Structured and tagged content
  - Individual studies
  - Descriptive tables
  - Evidence profiles
  - PICO

- Recommendations:
  - Key information
  - Rationale

- Guideline panel
  - GRADE

- Adaptation:
  - EBM textbooks
  - Structured process
  - Shared evidence
  - Linked to MAGICapp

- Decision aids:
  - For patients and clinicians

- Integrations:
  - Any website
  - Electronic Medical Records
  - Existing guideline platforms
  - Clinical pathways

- Exports:
  - All data
  - Widgets
  - PDF
  - Word

- Multilayered formats:
  - Available on all devices
  - Explore in detail
  - Interactive views
  - Mobile friendly
  - Online and offline

- Dynamic updating

- New evidence

SHARE-IT
Guidelines

The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain

The 2017 Canadian Guideline for Opioid use in Chronic Non-Cancer Pain was developed by a multidisciplinary, national working group of 140 participants including researchers and patients, led by the Michael G. DeGroote National Pain Centre in partnership with Health Canada and the Canadian Institute for Health Information. The guideline incorporates medical evidence published since the previous national opioid use guideline was made available in 2010. They are recommendations for physicians, but are not regulatory requirements. The guideline does not look at opioid use for acute pain, nor for patients with pain due to cancer or in palliative care, or those under treatment for opioid use disorder or opioid addiction.

Find recommendations, evidence summaries and consultation decision aids for use in your practice. MAGIC app

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A pair of siblings are seen in consultation…

Peter, 14 months
Fever two days
38.9°

Laura, 4 years old
• Cough and fever 5 days
• 39.5°, saturation 96%

Otitis media  

Pneumonia

→ Amoxicillin 80mg/kg/j
A pair of siblings are seen in consultation…

Peter, 14 months
Fever two days
38.9°

Laura, 4 years old
• Cough and fever 5 days
• 39.5°, saturaKon 96%

"Doctor, do you think my children should take probiotics? Laura had them last time that she had antibiotics, and I think it helped."

How can we get trustworthy and usable recommendations?

Pneumonia

→ Amoxicillin 80mg/kg/j
Guideline development in MAGICapp

1. Formulate PICO questions
   - 1a. Define Population
   - 1b. Define Intervention, Comparator
   - Define Patient-important Outcomes

2. Find outcomes across studies
   - Critical
   - Important
   - Not important

3. Make evidence profiles
   - Plot study details
   - Plot effect estimates
   - Rate quality of evidence
   - Write summary

4. Go from evidence to recommendations
   - Assess Evidence to Decision factors
   - The balance between benefits & harms
   - Quality of the documentation
   - Values & preferences
   - Resource use and other considerations

5. Formulate recommendations
   - For or against (direction)
   - Strong or weak (strength)
   - "We recommend..."
   - "We suggest..."
   - Formulate Rationale
   - Include Practical information if needed

Publish
### SUMMARY OF FINDINGS FOR THE MAIN COMPARISON

**Probiotics as an adjunct to antibiotics for the prevention of antibiotic-associated diarrhea in children**

**Patient or population:** Children given antibiotics  
**Setting:** Inpatient and outpatient  
**Intervention:** Probiotics  
**Comparison:** Control (placebo or no active treatment)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Anticipated absolute effects* (95% CI)</th>
<th>Effect size (95% CI)</th>
<th>Number of participants (studies)</th>
<th>Quality of the evidence</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Risk with control</td>
<td>Risk with Probiotics</td>
<td>RR</td>
<td>3898</td>
<td>MODERATE&lt;sup&gt;1,2&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Incidence of diarrhea</strong></td>
<td>191 per 1000</td>
<td>86 per 1000 (67 to 116)</td>
<td><strong>RR 0.46</strong></td>
<td>(0.35 to 0.61)</td>
<td>22 RCTs</td>
</tr>
<tr>
<td>Follow up: range 1 week to 12 weeks</td>
<td>3998</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adverse events</strong></td>
<td>35 per 1000</td>
<td>33 per 1000 (15 to 72)</td>
<td><strong>RD 0.00</strong></td>
<td>(0.01 to 0.01)</td>
<td>2455</td>
</tr>
<tr>
<td>Follow up: range 1 week to 4 weeks</td>
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<tr>
<td><strong>Duration of diarrhea</strong></td>
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<tr>
<td>Follow up: range 10 days to 12 weeks</td>
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<td><strong>Stool frequency</strong></td>
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<tr>
<td>Follow up: range 10 days to 12 weeks</td>
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</table>

*The risk in the intervention group (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI: Confidence interval; RR: Risk ratio; RD: Risk difference;
### Relative effect of intervention vs. comparator

**SOURCE OF EVIDENCE**
- Systematic review/meti
  - Systematic review: Studies: 0
  - Add and show evidence

**DATA FROM INCLUDED STUDIES**
- 3,898 patients in 22 Studies.
- Randomized controlled

**RELATIVE EFFECT (FROM STUDIES)**
- Relative risk: 0.46
- CI 95%: (0.35 - 0.61)

### Baseline risk (result of the outcome in the comparison group): No probiotics

**SOURCE OF EVIDENCE**
- Single/primary stud(ies)
  - Studies: 0
  - Add and show evidence

**DATA FROM INCLUDED STUDIES**
- 336 control participants in 1 Studies.
- Observational (non-randomized)
- # control events: 61 (18.15%)
- Follow up (in studies): 1 week after antibiot

**BASELINE RISK/ EFFECT WITH COMPARATOR**
- 180 per 1000

### Expected difference and best estimate of effect with intervention: Probiotics

**CALCULATED ESTIMATE WITH INTERVENTION**
- 83 per 1000

**ESTIMATED ABSOLUTE DIFFERENCE OF INTERVENTION VS. COMPARATOR (CALCULATED)**
- Difference: 97 fewer per 1000
- CI 95%: (117 fewer - 70 fewer)
## Data and analyses

### Comparison 1. Probiotics versus control

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Incidence CDAD: complete case</td>
<td>31</td>
<td>8672</td>
<td>Risk Ratio (M-H, Random, 95% CI)</td>
<td>0.40 [0.30, 0.52]</td>
</tr>
<tr>
<td>2 Incidence CDAD: complete case - fixed effects</td>
<td>31</td>
<td>8672</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>0.38 [0.30, 0.50]</td>
</tr>
<tr>
<td>3 Incidence CDAD: Sensitivity (1.5:1)</td>
<td>31</td>
<td>9637</td>
<td>Risk Ratio (M-H, Random, 95% CI)</td>
<td>0.41 [0.32, 0.54]</td>
</tr>
<tr>
<td>4 Incidence CDAD: Sensitivity (2:1)</td>
<td>31</td>
<td>9637</td>
<td>Risk Ratio (M-H, Random, 95% CI)</td>
<td>0.44 [0.34, 0.58]</td>
</tr>
<tr>
<td>5 Incidence CDAD: Sensitivity (3:1)</td>
<td>31</td>
<td>9637</td>
<td>Risk Ratio (M-H, Random, 95% CI)</td>
<td>0.48 [0.36, 0.63]</td>
</tr>
</tbody>
</table>
Get data from Cochrane (RevMan file)

### Data and analyses

#### Download statistical data

**Comparison 1. Probiotics versus control**

<table>
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<th>Outcome or subgroup title</th>
<th>Risk Ratio (M-H, Random, 95% CI)</th>
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</tbody>
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Get data from Cochrane (RevMan file)
<table>
<thead>
<tr>
<th>Evidence profile</th>
<th>Study results and measurements</th>
<th>Absolute effect estimates</th>
<th>Certainty in effect estimates</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Timeframe</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AAD &lt;2 years</strong></td>
<td>Relative risk 0.46 (CI 0.35 - 0.61)</td>
<td>180 per 1000</td>
<td>Moderate</td>
<td>Probiotics appear to decrease the incidence of AAD.</td>
</tr>
<tr>
<td></td>
<td>Based on data from 3898 patients in 22 studies</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Follow up: 1-12 weeks.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Severe AAD &lt;2 years</strong></td>
<td>0.46 (0.35 - 0.61)</td>
<td>18 per 1000</td>
<td>Low</td>
<td>Probiotics may decrease the incidence of severe AAD by a small amount.</td>
</tr>
<tr>
<td></td>
<td>Based on data from 3898 patients in 22 studies</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Follow up: 1-12 weeks.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GI side effects</strong></td>
<td>Relative risk 1 (CI 0.71 - 1.29)</td>
<td>35 per 1000</td>
<td>Moderate</td>
<td>Probiotics do not appear to increase the risk of gastrointestinal side effects.</td>
</tr>
<tr>
<td></td>
<td>Based on data from 2455 patients in 16 studies</td>
<td></td>
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<tr>
<td></td>
<td>Follow up: 1-4 weeks.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Probiotic-related sepsis</strong></td>
<td>Relative risk 1 (CI 0.95% - )</td>
<td>0 per 1000</td>
<td>Moderate</td>
<td>Probiotics do not appear to increase the risk of sepsis.</td>
</tr>
<tr>
<td></td>
<td>Based on data from 2455 patients in 16 studies</td>
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<tr>
<td></td>
<td>Follow up: 1-4 weeks.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Clostridium difficile diarrhea</strong></td>
<td>Relative risk 0.4 (CI 0.17 - 0.96)</td>
<td>59 per 1000</td>
<td>Very Low</td>
<td>Probiotics could reduce the risk of CDAD.</td>
</tr>
<tr>
<td></td>
<td>Based on data from 605 patients in 3 studies</td>
<td></td>
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<tr>
<td></td>
<td>Follow up: 2 weeks.</td>
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</tbody>
</table>
Probiotics for children receiving antibiotics for an infection

Children 1 month to 2 years old receiving antibiotics for an infection.

**Strong recommendation**

Benefits outweigh harms for almost everyone. All or nearly all informed patients would likely want this option.

We recommend adjunctive probiotics rather than no probiotics.

Children 2 to 18 years old receiving antibiotics for an infection.

**Weak recommendation**

Benefits outweigh harms for the majority, but not for everyone. The majority of patients would likely want this option.

We suggest adjunctive probiotics rather than no probiotics.
Children 1 month to 2 years old receiving antibiotics for an infection.

Benefits and harms

Benefits of probiotics include a reduced incidence of antibiotic associated diarrhea (AAD), severe AAD, and Clostridium difficile-associated diarrhea (CDAD). Among otherwise healthy children, probiotics do not increase the risk of gastrointestinal side effects or of probiotic-related sepsis.

Quality of evidence

For probiotics, we have moderate certainty that the estimated effects for reduced incidence of AAD, gastrointestinal side effects, and probiotic-related sepsis are close to the true effects, low certainty for severe AAD, and very low certainty for CDAD.

Preference and values

Patients and their caregivers are likely to place a relatively higher value on preventing AAD, particularly severe AAD than on the relatively minimal costs and burden of probiotics.

Resources and other considerations

Probiotics are generally inexpensive and accessible throughout the world. Many caregivers with lower disposable income, particularly those without socialized pharmacare or private insurance, may not have the means to afford probiotics.
Weak recommendation: Children 2 to 18 years old receiving antibiotics for an infection.

<table>
<thead>
<tr>
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<th>Summary</th>
<th>References</th>
</tr>
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<tbody>
<tr>
<td><strong>Outcome Timeframe</strong></td>
<td><strong>Study results and measurements</strong></td>
<td></td>
</tr>
<tr>
<td>AAD 2-18 years</td>
<td>Relative risk 0.46 (CI 95% 0.35 - 0.61) Based on data from 3689 patients in 22 studies. Follow up: 1-12 weeks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absolute effect estimates</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No probiotics</td>
<td>Probiotics</td>
</tr>
<tr>
<td></td>
<td>30 per 1000</td>
<td>14 per 1000</td>
</tr>
<tr>
<td></td>
<td>Difference: 16 fewer per 1000 (CI 95% 19 fewer - 12 fewer)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Certainty in effect estimates (Quality of evidence)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate Due to serious inconsistency.</td>
<td></td>
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<td></td>
<td>No probiotics</td>
<td>Probiotics</td>
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<tr>
<td></td>
<td>3 per 1000</td>
<td>1 per 1000</td>
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<td></td>
<td>Difference: 2 fewer per 1000 (CI 95% 2 fewer - 1 fewer)</td>
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<tr>
<td></td>
<td><strong>Certainty in effect estimates (Quality of evidence)</strong></td>
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<tr>
<td></td>
<td>Low Due to serious inconsistency and indirectness.</td>
<td></td>
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<tr>
<td></td>
<td><strong>Summary</strong></td>
<td></td>
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<td></td>
</tr>
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<td>GI side effects</td>
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<tr>
<td></td>
<td>35 per 1000</td>
<td>35 per 1000</td>
</tr>
<tr>
<td></td>
<td>Difference: 0 fewer per 1000 (CI 95% 10 fewer - 10 more)</td>
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<td></td>
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<tr>
<td></td>
<td><strong>Summary</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probiotics do not appear to increase the risk of gastrointestinal side effects.</td>
<td></td>
</tr>
<tr>
<td>Probiotic-related sepsis</td>
<td>Relative risk 1 (CI 95% -) Based on data from 2455 patients in 18 studies. Follow up: 1-4 weeks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absolute effect estimates</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No probiotics</td>
<td>Probiotics</td>
</tr>
<tr>
<td></td>
<td>0 per 1000</td>
<td>0 per 1000</td>
</tr>
<tr>
<td></td>
<td>Difference: 0 more per 1000 (CI 95% 0 - 3 more)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Certainty in effect estimates (Quality of evidence)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate No probiotic-related sepsis events reported in the 18 of 22 studies reporting adverse events. Rated down due to risk of bias from selective outcome reporting.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Summary</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probiotics do not appear to increase the risk of sepsis.</td>
<td></td>
</tr>
<tr>
<td>Clostridium difficile diarrhea</td>
<td>Relative risk 0.4 (CI 95% 0.17 - 0.66) Based on data from 605 patients in 3 studies. Follow up: 2 weeks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absolute effect estimates</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No probiotics</td>
<td>Probiotics</td>
</tr>
<tr>
<td></td>
<td>59 per 1000</td>
<td>24 per 1000</td>
</tr>
<tr>
<td></td>
<td>Difference: 35 fewer per 1000 (CI 95% 48 fewer - 2 fewer)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Certainty in effect estimates (Quality of evidence)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very Low Due to serious imprecision, risk of bias (possible selective outcome reporting), and indirectness in baseline estimate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Summary</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probiotics could reduce the risk of CDAD</td>
<td></td>
</tr>
</tbody>
</table>
Further enhancing dissemination: BMJ RapidRecs
The BMJ RapidRecs

BMJ Rapid Recommendations
Enhancing the Evidence Ecosystem

Day 45: Network
Submit updated
Synthesize evidence
Systematic reviews

Day 90: Updated recommendation
Disseminate evidence to clinicians
Trustworthy guidelines

Day 90: Available for SDM
Disseminate evidence to patients
Decision aids for the clinical encounter

Day 90: Available at point of care
Implement evidence
Personalized decision support in the EMR

New Evidence
Primary studies

Evaluate and improve practice
Recording practice & population-based data
EMR, Registries, Quality indicators, Shared decisions

Evidence Alerts

GRAPE

Data

Patient partners

MAGIC
Evidence Ecosystem Foundation

Data

Data

Data
Prostate cancer screening

Corticosteroids for treatment of sore throat

Antibiotics for uncomplicated skin abscesses

Antiretroviral therapy in pregnant women living with HIV

Dual vs single antiplatelet therapy

Corticosteroid therapy for sepsis

Thyroid hormones treatment for subclinical hypothyroidism

Oxygen therapy for acutely ill medical patients

Low intensity pulsed ultrasound (LIPUS) for bone healing

Subacromial decompression surgery for adults with shoulder pain

Arthroscopic surgery for degenerative knee arthritis and meniscal tears

Atraumatic (pencil-point) versus conventional needles for lumbar puncture

Transcatheter versus surgical aortic valve replacement

Patent foramen ovale closure or drug therapy for management of cryptogenic stroke

n=14 guidelines in 3 years

n=25 recs

n=18 SR

www.bmj.com/rapid-recommendations
Prostate cancer screening with prostate-specific antigen (PSA) test: a clinical practice guideline

Kari A O Tikkinen,1 2 Philipp Dahm,1 Lyubov Lytvyn,3 Anja F Heen,3 Robin W M Vernooij,6 Reed A C Siemieniuk,4 Russell Wheeler,7 Bill Vaughan,6 Awah Cletus Fobuzi,9 10 Marco H Blankes,7 Noetje Junod,2 Johanna Sommer,1 2 Jérôme Stirmann,1 2 Marabu Yoshimura,7 Reto Ausr,1 3 Helen MacDonald,9 Gordon Guyatt,1 Per Olav Vandvik,9 Thomas Agoritsas1 2 9
BMJ 2018;362:k3581

https://www.bmj.com/rapid-recommendations
Widgets pull content from MagicApp

Find recommendations, evidence summaries and consultation decision aids for use in your practice

Widgets that pull data from MAGICapp to embed on other platforms
# RAPID RECOMMENDATIONS

Prostate cancer screening with prostate-specific antigen (PSA) testing: should it be offered to older men? A clinical practice guideline from the US Preventive Services Task Force

https://www.bmj.com/rapid-recommendations

Widgets pull content from MagicApp

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Timeframe</th>
<th>Study results and measurements</th>
<th>Absolute effect estimates</th>
<th>Certainty in effect estimates</th>
<th>Plain text summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cause mortality</td>
<td>At 10 years</td>
<td>Relative risk 1.00 (CI 95% 0.98 - 1.02) Based on data from 162243 patients in 1 studies Follow up: 13 years.</td>
<td>129 per 1000</td>
<td>Moderate Due to serious risk of bias PSA screening probably has little or no effect on all cause mortality</td>
<td>PSA screening probably has little or no effect on all cause mortality</td>
</tr>
<tr>
<td>Prostate cancer mortality</td>
<td>At years 10</td>
<td>Relative risk 0.79 (CI 95% 0.69 - 0.91) Based on data from 162243 patients in 1 studies Follow up: 13 years.</td>
<td>3 per 1000</td>
<td>Moderate Due to serious risk of bias PSA screening probably has little or no effect on prostate cancer mortality</td>
<td>PSA screening probably has little or no effect on prostate cancer mortality</td>
</tr>
<tr>
<td>Incidence of prostate cancer (any stage)</td>
<td>At 10 years</td>
<td>Relative risk 1.57 (CI 95% 1.51 - 1.62) Based on data from 162243 patients in 1 studies Follow up: 13 years.</td>
<td>32 per 1000</td>
<td>Moderate Due to serious risk of bias PSA screening probably increases the detection of prostate cancer (any stage)</td>
<td>PSA screening probably increases the detection of prostate cancer (any stage)</td>
</tr>
<tr>
<td>Incidence of localized prostate cancer (stage I &amp; II)</td>
<td>At 10 years</td>
<td>Relative risk 1.76 (CI 95% 1.88 - 1.82) Based on data from 162243 patients in 1 studies Follow up: 13 years.</td>
<td>19 per 1000</td>
<td>Moderate Due to serious risk of bias PSA screening probably increases the detection of prostate cancer (any stage)</td>
<td>PSA screening probably increases the detection of prostate cancer (any stage)</td>
</tr>
</tbody>
</table>

Find recommendations, evidence summaries and consultation decision aids for use in your practice

Decision Aids Widgets
What aspect of your treatment would you like to discuss next?

- Diarrhea
- Severe diarrhea
- GI side effects
- Probiotic-related sepsis
- Clostridium difficile diarrhea
- Practical issues
SHARE-IT Decision Aids

Diarrhea
Among a 1000 patients like you, with Adjunctive probiotic therapy

16 fewer

No probiotic therapy
30 per 1000

Adjunctive probiotic therapy
14 per 1000

Certainty
MODERATE

970
SHARE-IT Decision Aids

Among a 1000 patients like you, on average with Adjunctive probiotic therapy

<table>
<thead>
<tr>
<th>Condition</th>
<th>No probiotic therapy</th>
<th>Adjunctive probiotic therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhea</td>
<td>30 per 1000</td>
<td>14 per 1000</td>
</tr>
<tr>
<td>Certainty</td>
<td>MODERATE</td>
<td></td>
</tr>
<tr>
<td>Severe diarrhea</td>
<td>3 per 1000</td>
<td>1 per 1000</td>
</tr>
<tr>
<td>Certainty</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Clostridium difficile diarrhea</td>
<td>59 per 1000</td>
<td>24 per 1000</td>
</tr>
<tr>
<td>Certainty</td>
<td>VERY LOW</td>
<td></td>
</tr>
</tbody>
</table>

GI side effects
Probiotic-related sepsis
Practical issues
Health Professionals

Patients' experiences shared on film.

Related:
- Using healthtalk.org for training
- Trigger films for service improvement
- Patients tell us what makes good healthcare

"It gives us a unique look at what it's like to be on the receiving end."

A problem shared
Reliable health information from patients, for patients.
# SHARE-IT Decision Aids

## Practical issues

- Medication routine
- Tests and visits
- Procedure and device
- Recovery and adaptation
- Coordination of care
- Adverse effects, interactions and antidote
- Physical well-being
- Emotional well-being
- Pregnancy and nursing
- Costs and access
- Food and drinks
- Exercise and activities
- Social life and relationships
- Work and education
- Travel and driving
The Evidence Ecosystem

- Evidence synthesizers
- Evidence disseminators to clinicians
- Evidence disseminators to patients
- Evidence producers
- Evidence evaluators & improvers
- Evidence implementers
Computerized Decision Support Systems (CDSS)
- take the advice from a published guideline away from its original place of publishing
- are time consuming to create and update
- rely too much on algorithms and reminders, which have limitations

MagicApp moves guidelines from a text-based format to an electronic structure
Plugging-in to Electronic Health Records (HER)

These patient specific elements can be shown together with the recommendation in any clinical system that allows it.

### Laboratory Tests
- Erythrocyte sedimentation rate
- Hemoglobin
- D-dimer
- Activated partial thromboplastin time (aPTT)
- Sodium
- Chloride
- Anion Gap
- Thyroxine
- pH-arterial
- Triglyceride
- HDL- cholesterol
- Gamma glutamyl transferase
- Aspartate aminotransferase
- Glomerular filtration rate
- Lactate dehydrogenase
- Troponin T.cardiac
- Carcinoembryonic Ag
- Glucose

### Observations / Measurements
- White Bloodcell Count
- Platelets
- INR
- Creatinin
- Potassium
- Bicarbonate
- Thyroid stimulating hormone
- Oxygen
- Carbon dioxide
- Total cholesterol
- LDL-cholesterol
- Alanine aminotransferase
- C reactive protein
- Phosphate
- Prostate specific Ag
- Troponin I.cardiac
- Glycos

### Drug Groups
- Immunosuppressives
- Antithrombotics
- Opioids

### Diseases Registered
- Renal failure
- Liver disease
- Heart failure
- chronic obstructive pulmonary disease
- Neoplasm
- Venous thromboembollic disease
Clinical Decision Support

Excerpt from Norwegian guidelines for antithrombotic therapy and thromboprophylaxis.

1. Venous thromboembolism

Selection of drug for long-term treatment

- Rivaroxaban versus LMWH: No significant difference for any outcome.
- Dobutamine versus warfarin: No significant difference for any outcome.
- Apixaban versus warfarin: No significant difference for recurrent thrombosis or death after 6 months, but significantly fewer major bleeds with apixaban.

Quality of evidence
- For LMWH versus warfarin: Consistent trend: Moderate due to low precision and possible risk of bias.
- For NOAC versus warfarin: Moderate due to imprecise effect estimates for mortality and recurrent venous thrombosis.

Preferencs and values
- We believe that most patients will want long-term oral treatment instead of LMWH given the burden of subcutaneous injection.

Resources and other considerations
- Warfarin, LMWH and rivaroxaban remunerted. Three months' supply of warfarin (3 tablets daily: 5 mg), rivaroxaban 20 mg/1: NOC 22001, £1000, 110000 11/1, NOC 7404. - PCI ORI 08/01/12.

EMR Data

- Neoplasm
  - SNOMED: 102463006
- Liver disease
  - SNOMED: 255636003
- Renal failure
  - SNOMED: 286242003
- Temperature
  - Value: 37.7 °C
- Body weight
  - Value: 60 kg
- Pulse Rate
  - Value: 89 /min
- Antithrombotics
  - ATC: B01
  - Creatinin
    - Value: 78 mmol/l
  - Hemoglobin
    - Value: 11.2 g/l
  - Platelets
    - Value: 256 x 10^9/l
  - Potassium
    - Value: 3.7 mmol/l
  - Sodium
    - Value: 138 mmol/l
  - INR
    - Value: 1.13
  - Blood pressure
    - Value: 110 / 72 mmHg
  - C reactive protein
    - Value: 18 mg/l
  - Alanine aminotransferase
    - Value: 254 U/l

View less details
Living Evidence: MAGIC “time machine” and track change
Thank you!  http://magicproject.org/contact/  @ThomasAgoritsas
Living Evidence Network

Join the LEN by emailing lsr@cochrane.org