

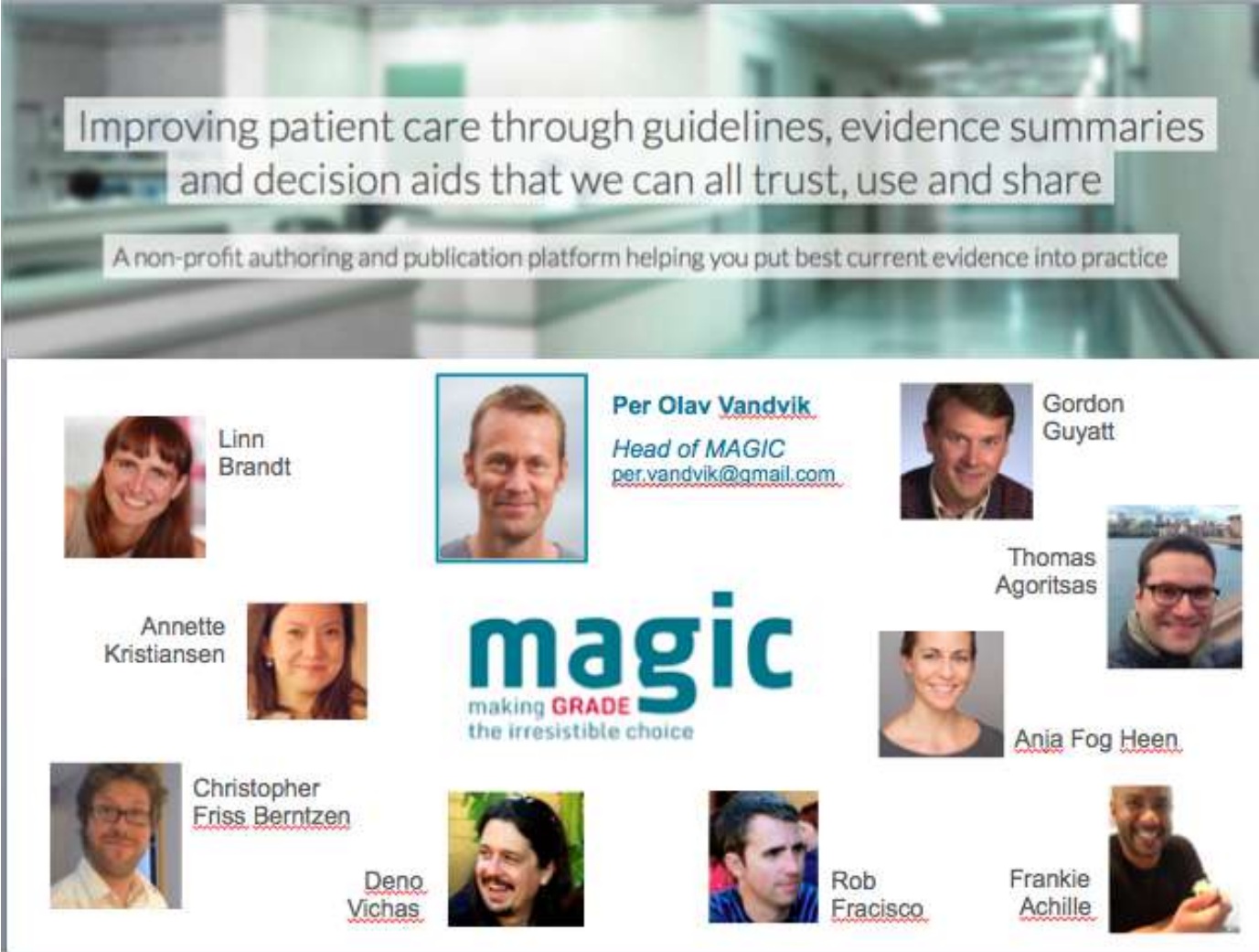
G-I-N Nordic Ecosystem for trustworthy guideline creation, dissemination and updating





Declaration of interests


Improving patient care through guidelines, evidence summaries
and decision aids that we can all trust, use and share


A non-profit authoring and publication platform helping you put best current evidence into practice





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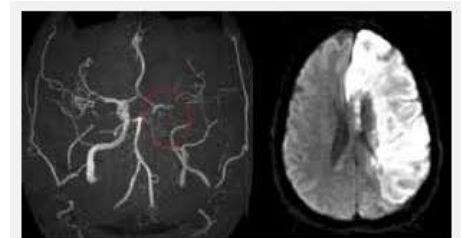
**Deno Vichas**

**Rob Fracisco**

**Frankie Achille**

Meet Jon, 63 years old bus driver

- Hospitalized with stroke
- Proximal anterior circulation occlusion
- Received thrombolysis within 3 hrs
- Should we do thrombectomy?
- 4 trials published showing positive results in NEJM 2015
- **How find trustworthy answers ?**



One of four studies in NEJM 2015

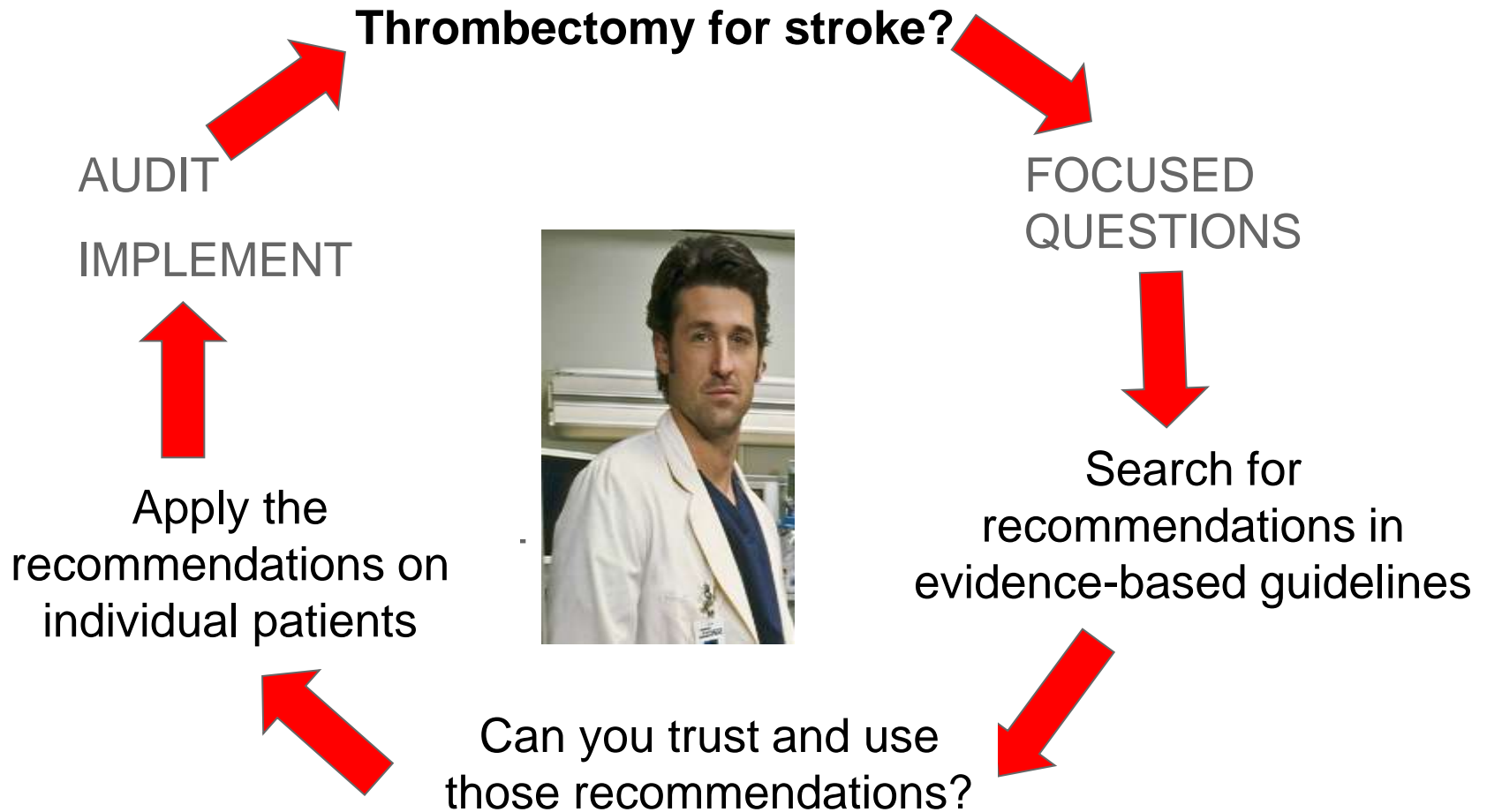
THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

Table 2. Primary and Secondary Clinical and Imaging Outcomes.*

Outcome	Thrombectomy (N=103)	Control (N=103)	Effect Variable	Unadjusted Value (95% CI)	Adjusted Value (95% CI)
Primary outcome: score on modified Rankin scale at 90 days	NA	NA	Common odds ratio	1.7 (1.04 to 2.7)	1.7 (1.05 to 2.8)
Secondary outcome					
Score of 0 to 2 on modified Rankin scale at 90 days — no. (%) [†]	45 (43.7)	29 (28.2)	Odds ratio	2.0 (1.1 to 3.5)	2.1 (1.1 to 4.0)
Dramatic neurologic improvement at 24 h — no./total no. (%) [‡]	59/100 (59.0)	20/100 (20.0)	Odds ratio	5.5 (2.9 to 10.3)	5.8 (3.0 to 11.1)
Median NIHSS score at 90 days (IQR)	2.0 (0.0 to 8.0)	6.0 (2.0 to 11.0)	Beta	-2.7 (-4.4 to -0.9)	-2.4 (-4.1 to -0.8)
Barthel Index score of 95 to 100 at 90 days — no./total no. (%) [§]	47/82 (57.3)	23/87 (26.4)	Odds ratio	3.7 (2.0 to 7.1)	4.2 (2.1 to 8.4)
Median EQ-5D score at 90 days (IQR) [¶]	0.65 (0.21 to 0.79)	0.32 (0.13 to 0.70)	Beta	0.13 (0.03 to 0.23)	0.11 (0.02 to 0.21)
Infarct volume at 24 hr					
Patients evaluated on CT:diffusion-weighted MRI — no.	91:10	98:5			
Median (IQR) — ml	16.3 (8.3 to 58.5)	38.6 (11.9 to 86.8)	P value	P=0.02	

Finding trustworthy answers to clinical questions



How good are we at answering our questions?

Original Investigation

Clinical Questions Raised by Clinicians at the Point of Care A Systematic Review

Guilherme Del Fiol, MD, PhD; T. Elizabeth Workman, PhD, MLIS; Paul N. Gorman, MD

RESULTS In 11 studies, 7012 questions were elicited through short interviews with clinicians after each patient visit. The mean frequency of questions raised was 0.57 (95% CI, 0.38-0.77) per patient seen, and clinicians pursued 51% (36%-66%) of questions and found answers to 78% (67%-88%) of those they pursued. Overall, 34% of questions concerned drug treatment, and 24% concerned potential causes of a symptom, physical finding, or diagnostic test finding. Clinicians' lack of time and doubt that a useful answer exists were the main barriers to information seeking.

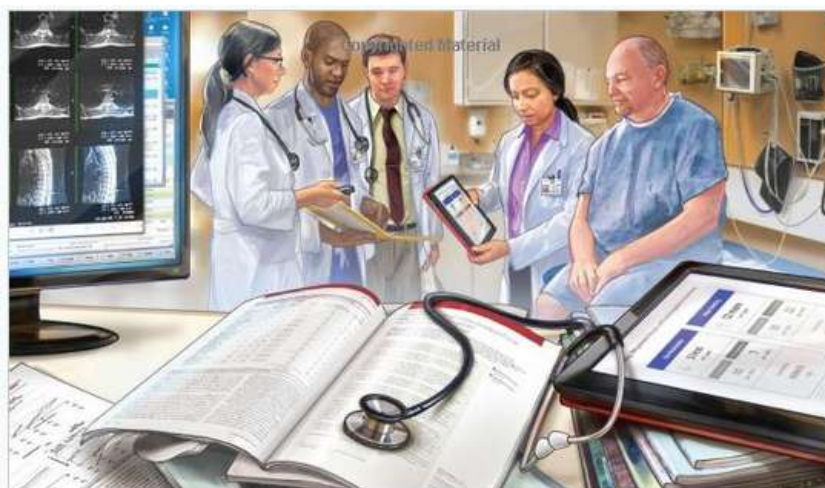
CONCLUSIONS AND RELEVANCE Clinicians frequently raise questions about patient care in their practice. Although they are effective at finding answers to questions they pursue, roughly half of the questions are never pursued. This picture has been fairly stable over time despite the broad availability of online evidence resources that can answer these questions. Technology-based solutions should enable clinicians to track their questions and provide just-in-time access to high-quality evidence in the context of patient care decision making. Opportunities for improvement include the recent adoption of electronic health record systems and maintenance of certification requirements.

studies with similar methods.

← Invited Commentary



Evidence-based medicine: Great advances



3rd EDITION

Users' Guides to the Medical Literature

A MANUAL FOR EVIDENCE-BASED CLINICAL PRACTICE

Gordon Guyatt, MD
Drummond Rennie, MD
Maureen O. Meade, MD
Deborah J. Cook, MD



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23rd
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Filtering the
information overload
for better decisions

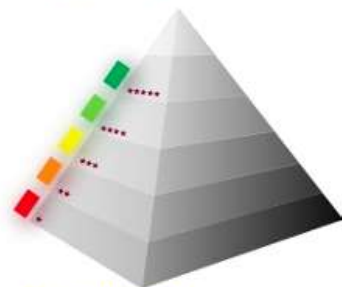
3-7 Oct, 2015
colloquium.cochrane.org



Finding best current recommendations and evidence within 2 minutes

McMaster **PLUS** // helsebiblioteket.no
gir deg fri tilgang til denne tjenesten

Utvalgte nye studier



6S model explained
Criteria for articles in **PLUS**

Historikk
stroke thrombectomy **Søk**
Current PLUS Database:

Oppslagsverk ★★★★★

■ UpToDate

Reperfusion therapy for acute ischemic stroke

Neuroimaging of acute ischemic stroke

More Results...

■ Best Practice

Overview of stroke

Ischaemic stroke

More Results...

Systematiske oversikter ★★★★★

■ PLUS Syntheses

Stroke in the TOTAL trial: a randomized trial of routine thrombectomy vs. percutaneous coronary intervention alone in ST elevation myocardial infarction. *(Systematic Review)*

Oppsummerte Enkeltstudier ★★★★★

■ ACP Journal Club (selected via PLUS)

Adding neurovascular thrombectomy to IV t-PA reduced disability in acute ischemic stroke

In STEMI, manual thrombectomy before PCI did not reduce CV-related outcomes but increased stroke

More Results...

Enkeltstudier (pre-appraised by these criteria) ★★★★★

■ PLUS Studies

Stent-retriever thrombectomy after intravenous t-PA vs. t-PA alone in stroke. *(Original Study)*

Thrombectomy within 8 hours after symptom onset in ischemic stroke. *(Original Study)*

■ Oppslagsverk ★★★★★

UpToDate

Best Practice

■ Oppsummerte oversikter ★★★★★

ACP Journal Club (via PLUS)

DARE

■ Systematiske oversikter ★★★★★

PLUS Syntheses

■ Oppsummerte enkeltstudier ★★★★★

ACP Journal Club (via PLUS)

■ Enkeltstudier ★★★★★

PLUS Studies

UpToDate provides an answer

- Basics topic (see ["Patient information: Stroke \(The Basics\)"](#))
- Beyond the Basics topics (see ["Patient information: Stroke symptoms and diagnosis \(Beyond the Basics\)"](#) and ["Patient information: Ischemic stroke treatment \(Beyond the Basics\)"](#))

SUMMARY AND RECOMMENDATIONS

- Randomized controlled trials have shown that intravenous [alteplase](#) (recombinant tissue-type plasminogen activator or tPA) improves functional outcome from ischemic stroke and that the benefits outweigh the risks for patients who receive treatment within 4.5 hours of symptom onset (or within 4.5 hours of when the patient was last seen normal in cases when onset time is unknown). The benefit of intravenous thrombolysis decreases continuously over time from symptom onset. Therefore, treatment must be given as soon as possible, rather than near the end of the time window. (See ['Intravenous thrombolysis'](#) above and ['Treatment within 3 hours'](#) above and ['Treatment from 3 to 4.5 hours'](#) above and ['Pooled data'](#) above.)
- The most important factor in successful thrombolytic treatment of acute ischemic stroke is early treatment. Nonetheless, selection of appropriate candidates for thrombolysis ([table 1](#)) demands a neurologic evaluation and a neuroimaging study. For eligible patients with acute ischemic stroke, we recommend intravenous [alteplase](#) therapy, provided that treatment is initiated within 3 hours of clearly defined symptom onset ([Grade 1A](#)). For patients who cannot be treated in less than 3 hours, we suggest intravenous alteplase therapy, provided that treatment is initiated within 3 to 4.5 hours of clearly defined symptom onset ([Grade 2A](#)). Recommendations for the use of intravenous alteplase are discussed separately. (See ["Intravenous fibrinolytic \(thrombolytic\) therapy in acute ischemic stroke: Therapeutic use"](#).)
- Recanalization is generally associated with improved outcome and reduced mortality in acute ischemic stroke. A number of factors may affect the response to thrombolytic therapy, including location of the occlusion in the arterial tree, availability of collateral blood supply, and clot-specific features such as size, composition, and source. (See ['Recanalization'](#) above and ['Factors affecting recanalization'](#) above.)
- For patients with ischemic stroke caused by a large artery occlusion in the proximal anterior circulation, we recommend early treatment with intra-arterial mechanical thrombectomy using a second-generation stent retriever device, whether or not the patient received treatment with intravenous tPA, if the following conditions are fulfilled ([Grade 1A](#)) (see ['Mechanical thrombectomy'](#) above and ['Selecting patients for mechanical thrombectomy'](#) above):
 - Neuroimaging (eg, CT without contrast) is consistent with a small infarct core (ie, minimal or no signs of early ischemic change) and excludes hemorrhage
 - Angiography (eg, CT angiography) demonstrates a proximal large artery occlusion in the anterior circulation
 - Thrombectomy is performed at a stroke center with expertise in the use of stent retrievers
 - Intra-arterial thrombectomy is initiated within 6 hours of stroke symptom onset

What does our national guideline (from 2010) say?

Nasjonale retningslinjer for behandling og rehabilitering ved hjerneslag

Organisering

[Prehospitalt Sykehus](#)
[TIA](#)
[Slagsentra](#)
[Rehabilitering](#)
[Kontroll](#)
[Oppfølging & samhandling](#)

Akutfasen

Prehospitalt	Tverrfaglige behandlingstiltak
Mottak av pasient	Andre tilstander
Diagnostiske undersøkelser	Slagenheter
Hjerneinfarkt og TIA	Livsforlengende behandling
Hjerneblødning	Spesialiserte slagsentra
Fysiologisk homøostase	Telemedisinsk nettverk
Komplikasjon	

Sekundærforebygging

Utredning	Graviditet og amming
Antitrombotisk	Forebygging ved hjerneblødning
Blodtrykkssenkende	Oppfølging
Lipidsenkende	
Diabetes mellitus	
Karotisstenose	
Levevaner	

Rehabilitering

[Organisering slagrehabilitering](#)
[Prosesser i slagrehabilitering](#)
[Funksjon og aktivitet](#)
[Aktivitet og deltakelse](#)
[Miljøfaktorer](#)

Verktøy & vedlegg

[Organisering, struktur, og bemanning i slagenheter](#)
[Tester og skåringsverktøy](#)
[Kriterier for trombolytisk behandling ved hjerneinfarkt](#)
[Sjekkliste ved utskrivning](#)
[Tiltak under transport](#)
[Forkortelser](#)

Akutfasen > Behandling hjerneinfarkt TIA >

3.5.1 Reperfusjonsbehandling

Underkapitler

- [Intravenøs trombolytisk beh](#)
- [Intra-arteriell behandling](#)

Vedlegg

[Litteraturliste](#)

Anbefalinger : akutt reperfusjonsbehandling

I.v. trombolyse med r-tPA (alteplase) er en effektiv behandling som bør tilbys utvalgte pasienter * med akutt hjerneinfarkt innen 3 t etter sykdomsstart* og bør startes tidligst mulig.

Grad Nivå

A 1a

I.a. trombolyse eller i.a. embolektomi kan vurderes hos utvalgte pasienter med kontraindikasjoner mot i.v. trombolyse eller store proksimale okklusjoner, men klare

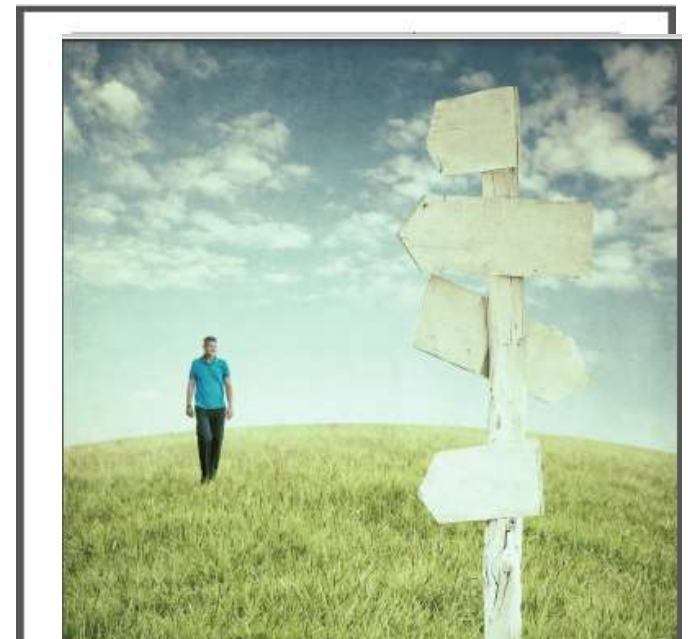
D 4

We need to create trustworthy guidelines according to new definitions and standards

New definition

“Clinical Practice Guidelines are statements that include recommendations intended to optimize patient care. They are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options “

New standards



GRADE

Formulate question

Select outcomes

Rate importance

Outcomes across studies

Create evidence profile with GRADEpro

Rate quality of evidence for each outcome

P
I
C
O

Outcome Critical

Outcome Critical

Outcome Important

Outcome Not important



Outcome	Quality	Summary of findings & estimate of effect for each outcome
Critical	High	
Critical	Moderate	
Important	Low	
Not important	Very low	

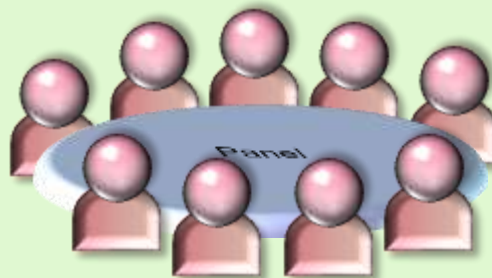
High
Moderate
Low
Very low

Summary of findings & estimate of effect for each outcome

Systematic review

Guideline development

Formulate recommendations:
• For or against (direction)
• Strong or weak/conditional (strength)



Grade overall quality of evidence across outcomes



By considering:

- Quality of evidence
- Balance benefits/harms
- Values and preferences

Revise if necessary by considering:

- Resource use (cost)

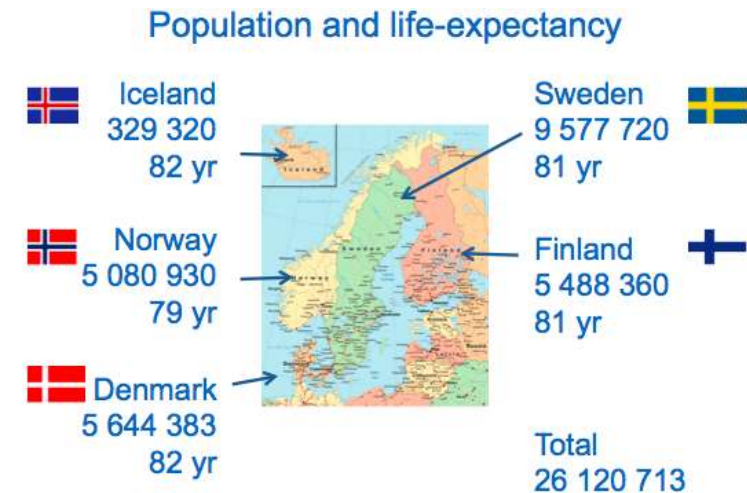


- "We recommend using..."
- "We suggest using..."
- "We recommend against using..."
- "We suggest against using..."

Illustration from Holger Schunemann and Yngve Falck Ytter

How are the Nordic countries coping?

- Lots in common, but work in silos
- Guidelines made independently
- Extremely resource-demanding
- Huge duplication, waste!!
- No established collaboration, uniform data models and formats for creating and disseminating
- Major Nordic guideline producers now cooperating through G-I-N Nordic Regional working group



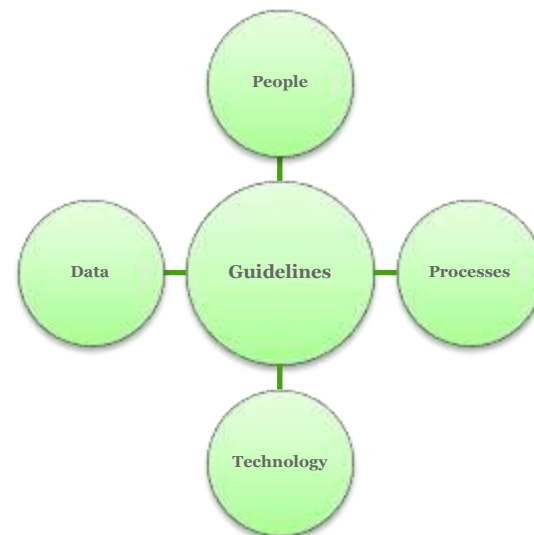
www.countrymeters.info, Population register center of Finland (3.10.2015)



We aim to solve global problems

- Although considered crucial for safe and high quality health care most current clinical practice guidelines suffer from
 - ✓ lacking trustworthiness
 - ✓ a cumbersome development process,
 - ✓ suboptimal presentation formats
 - ✓ inefficient dissemination
 - ✓ being outdated
 - ✓ sub-optimal facilitation of shared decision making

G-I-N Nordic: Overall goal



- In this project GIN Nordic aims to **develop, test and evaluate a Nordic ecosystem for developing, disseminating and updating evidence based Nordic guidelines**
- The project shall be **considered a pilot within GIN International**, as a **framework for international collaboration and adaptation** that may be recommended and further shared through GIN International



Guideline panel using MAGICapp



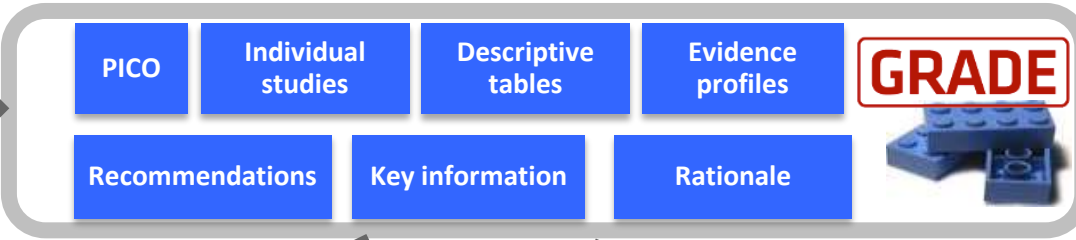
Guideline authoring and publication platform (MAGICapp)

New evidence

THE LANCET

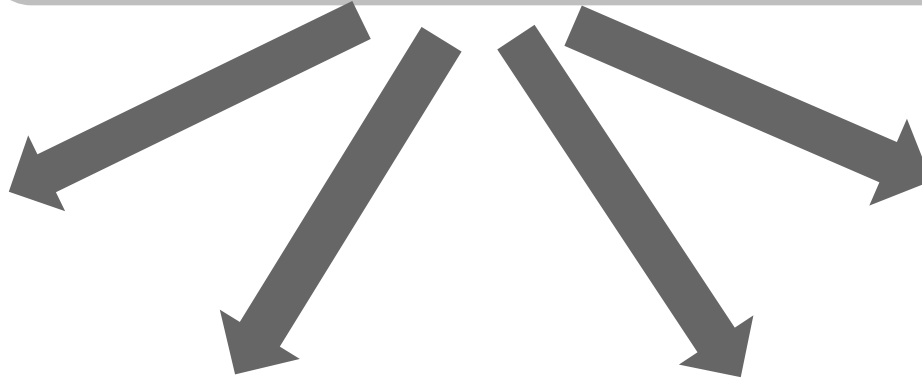


Dynamic updating



Database structured and tagged content

Multilayered formats for all devices



Decision aids for patients and clinicians



Integrated in the EMR



Adaptation National/ local or EBM Textbooks



MAGIC with DECIDE

A trustworthy recommendation for thrombectomy? Not anymore!

www.magicapp.org/app?locale=no#/guideline/414

Retningslinjer for antitrombotisk behandling og profylakse
v1.1 published on 2015-07-27

Hjem Tilbakemeldinger Hjelp Logg inn NO ONLINE

Søk etter anbefalinger **Søk**

Mekanisk rekanaliserende behandling

Svak anbefaling

Hos pasienter med hjerneinfarkt foreslår vi å avstå fra mekanisk rekanaliserende behandling.

Behandlingen kan vurderes individuelt hos pasienter med proksimal cerebral arterieokklusjon.

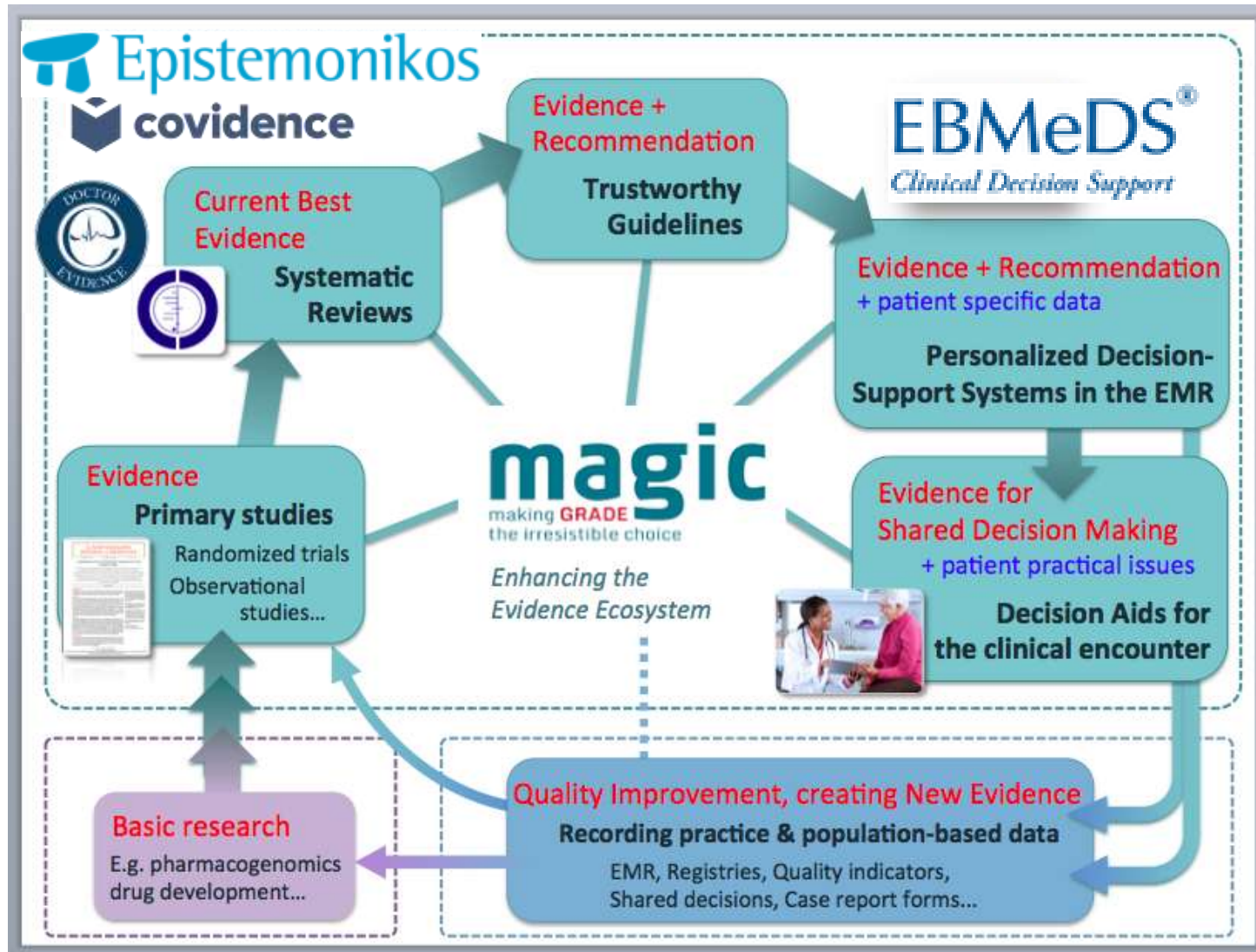
Effektestimater **Nøkkelforo** Rasjonale Praktisk info Adaptasjon Ref Kommentarer (0)

Populasjon	Intervensjon	Komparator	Utfall
Akutt iskemisk slag <small>Vis</small>	Mekanisk trombektomi	Standard medikamentell behandling	Mortalitet, funksjonsnivå

Evidensprofil Sammendrag Referanser

Utfall	Tiltro TII Effektestimaterne	Relativ Effekt	Standard Medikamentell Behandling	Mekanisk Trombektomi	Forskjell Med Mekanisk Trombektomi	Antall Inkluderte (Studier), Oppfølgingstid
Mortalitet (90 dager)	Lav <i>Risiko for systematiske feil</i>	RR 1.78 <i>(95% KI 1.24 - 2.64)</i>	210 <i>per 1000</i>	374 <i>per 1000</i>	164 flere <i>per 1000</i> <i>(95% KI 50 flere - 344 flere)</i>	619 (6) 30-90 dager
Godt funksjonsnivå, mRS 0-2 (90 dager)	Lav <i>Risiko for systematiske feil</i>	RR 0.95 <i>(95% KI 0.72 - 1.29)</i>	290 <i>per 1000</i>	275 <i>per 1000</i>	15 færre <i>per 1000</i> <i>(95% KI 81 færre - 84 flere)</i>	604 (5) 90 dager

A trustworthy and digital evidence ecosystem



Work package 1 - Cooperation & adaptation

- Guidelines for stroke, dementia and ADHD
- Overall goal is to
 - ✓ establish forums for cooperation, sharing and adaptation of guidelines
 - ✓ avoid redundant work and significantly increase guideline development efficiency and quality

National Institute for Health and Care Research
NIHR ESRP

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Sections: Akutbehandling

1 Akutbehandling

1.1 POPULATION: All people with stroke

INTERVENTION: Medication
COMPARATOR: Inget farmaceutisk
OUTCOMES: Døt, alvorlig funktionsnedsættelse, kognitiv svækkelse, livskvalitet

Outcome	Confidence in Effect Estimates	Relative Effect	NNT	Harms	Number of Studies	Difference (95% CI)	Participants (Studies, Follow-up)
Døt	Low	0.18 (0.08-0.27)	693 per 1000	322 per 1000	1 (134)	378 lower per 1000 (333 lower - 423 lower)	1 (134)

Australian Stroke Guidelines
Evidence Synthesis Platform

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Sections: Stroke recognition and pre-hospital care

1 Stroke recognition and pre-hospital care

1.1 POPULATION: All people with stroke

INTERVENTION: Rapid transfer
COMPARATOR: Usual care
OUTCOMES: Death, disability

1.2 POPULATION: All people with stroke

INTERVENTION: Community awareness programs
COMPARATOR: No community awareness programs
OUTCOMES: Increased recognition of the signs and symptoms of stroke

1.3 POPULATION: All people with stroke

INTERVENTION: Tools to recognise stroke
COMPARATOR: No tools
OUTCOMES: Increased recognition of stroke

Work package 2 - guideline development by professional societies

www.magicapp.org/app?locale=no#/guideline/547

SAI DEMO: Scandinavian clinical practice guideline on choice of fluid in resuscitation of critically ill patients with acute circulatory failure v0.3 published on 2015-08-04

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Kapitler <

Fluid resuscitation in critically ill general ICU patients with acute circulatory failure

Fluid resuscitation in critically ill septic patients with acute circulatory failure

Fluid resuscitation in critically ill trauma patients with acute circulatory failure

Fluid resuscitation in critically ill burn patients with acute circulatory failure

Søk etter anbefalinger Søk

1 Fluid resuscitation in critically ill general ICU patients with acute circulatory failure

Bakgrunnstekst

HES

Sterk anbefaling

We recommend that crystalloids are used for resuscitation in general ICU patients rather than HES

Albumin

Svak anbefaling

We suggest that crystalloids are used for resuscitation in general ICU patients rather than albumin

Gelatin

Svak anbefaling

We suggest that crystalloids are used for resuscitation in general ICU patients rather than gelatin

2 Fluid resuscitation in critically ill septic patients with acute circulatory failure

Bakgrunnstekst

Work Package 3: Test bed for software developers



Take home messages

- Great advances in standards and systems for EBM, guidelines and decision support tools
- Technology will play a key role in creating, disseminating and updating trustworthy evidence in a digital world
- EBM not enough: Evidence Ecosystem a solution?
- G-I-N Nordic is ongoing innovation project, results to come

