



Industry Partner Success



The OCCAM story



Reducing care variability & protocol fragmentation at an academic trauma center

OCCAM

Online Clinical Care Advisories & Messages



Erik G. Van Eaton, MD, FACS

University of Washington

How do I ...?

Choose the correct VTE prophylaxis for a patient with pelvic fracture & small, stable subarachnoid hemorrhage?

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Decide which patients need CT angiography to rule out blunt cerebrovascular injury?

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Choose the correct VTE prophylaxis for a patient with pelvic fracture & small, stable subarachnoid hemorrhage?

Decide which patients need CT angiography to rule out blunt cerebrovascular injury?

Transfer a stabilized, high-risk pregnant trauma patient to the campus with a dedicated labor & delivery unit?

Step 1: Available IT resources

In 2011, found 33 clinical websites at UW:

- 14 open to the world
- 19 password protected
- 11 restricted by department

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Sampled 22 clinical websites:

- 382 protocols/guidelines
- 276 broken links
- Only 10 sites contained date/source/author
- **None** with evidence of peer review or approval
- No standardization or mobile optimization

Step 2: Current behaviors

In the clinic & on rounds, our providers often look in reference systems when making plans.

On rounds – heavy use of mobile devices for Google, PubMed, UpToDate.

2011 Pilot Study Results

- 38 clinical questions over 23 rounding days
- 40% related to institutional guidelines/protocols
- Attitudes toward use of guidelines: favorable, but guidelines were **hard to find**
- Information seeking behavior:
 - **Smart phones**
 - Paper pocket guides
- Evidence often unavailable in actionable form when clinical decisions are being made = information & knowledge gaps

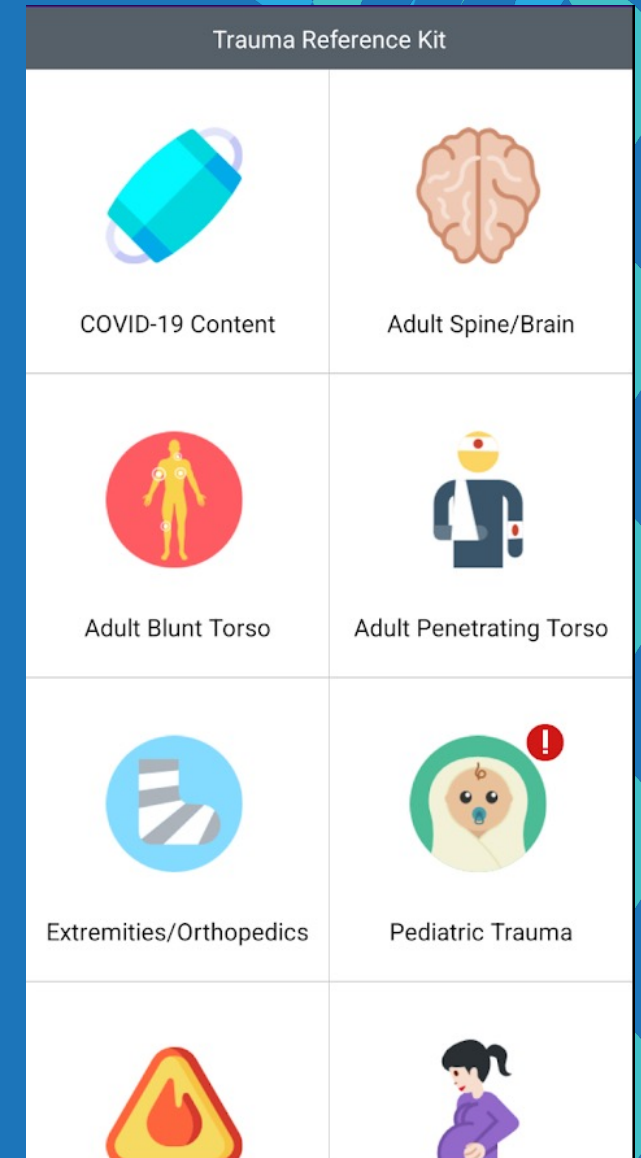
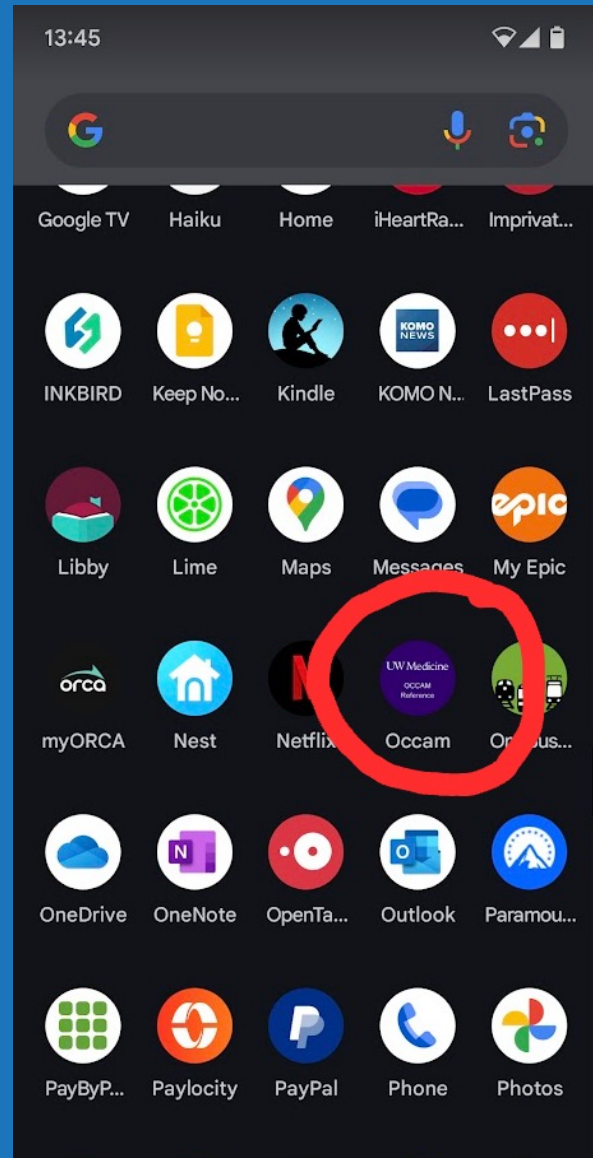
Step 3: Intervention

- Harmonization: form editorial board
- Standardization: create templates/styles
- Delivery: desktop & mobile device access

Content must be:

- Easy to find (smartphone app, EHR link)
- Clinically actionable (concise, “do this”)
- Served intelligently (robust IT platform)

Easy to find



Clinically actionable

PROTOCOL:

I. Inclusion Criteria: This algorithm applies to adults and children¹.

II. Indications for Screening (CT Angiography)

CT angiography should be performed in patients who have an increased risk of BCVI, signs or symptoms suggestive of blunt carotid or vertebral artery injury, and/or concern for BCVI on screening imaging of the neck vasculature that is part of the trauma pan scan protocol (see below).

High risk factors for BCVI. Any of:

- A. LeFort II or III facial fracture.
- B. Mandible fracture with high risk mechanism(* *See below*).
- C. All skull base fractures (This includes sphenoid, petrous temporal, clivus, ethmoid, occipital bone and occipital condyle fractures).
- D. Any fracture (except spinous process), subluxation, or ligamentous injury of the cervical spine.
- E. Major thoracic injuries including "Great vessel"^{***} injuries, flail chest, thoracic crush injuries, >15% chest wall soft tissue injury/avulsion, lung lacerations (except minor, unilateral, lacerations in a single lobe), tracheal or bronchial injury, large volume hemothorax (>1000mL), and/or large volume pneumothorax (>50% and/or tension).^{***}
- F. Scalp degloving

Served intelligently

- Uses UW security method, including centralized authentication.
- Stores content in cloud, compliant with all security & regulatory protocols.
- Provides author/approver metadata, & non-interruptive update push process.

Served intelligently

Blunt Cerebrovascular Injury

Devastating ischemic neurologic sequelae develop in approximately 10–20% of patients within 10–72 hours after blunt head injury. Management (see BSCI management) aims to reduce the stroke rate and prevent secondary injury. Although recent evidence suggests that high-risk mechanisms are associated with BSCI, the pathophysiology remains unclear.

Findings suggestive of blunt carotid artery injury as part of the trauma pan scan.

and occipital condyle

chest wall soft tissue
or bronchial injury, large

▼ References

1. Anto VP, Brown JB, Peitzman AB, et al. Blunt cerebrovascular injury in elderly fall patients: are we screening enough? World J Emerg Surg 2018;13:30.

Last reviewed:

04 January 2022

Author(s):

Martin Gunn, MD, Ken Linnau, MD, Eileen Bulger, MD

Approved By:

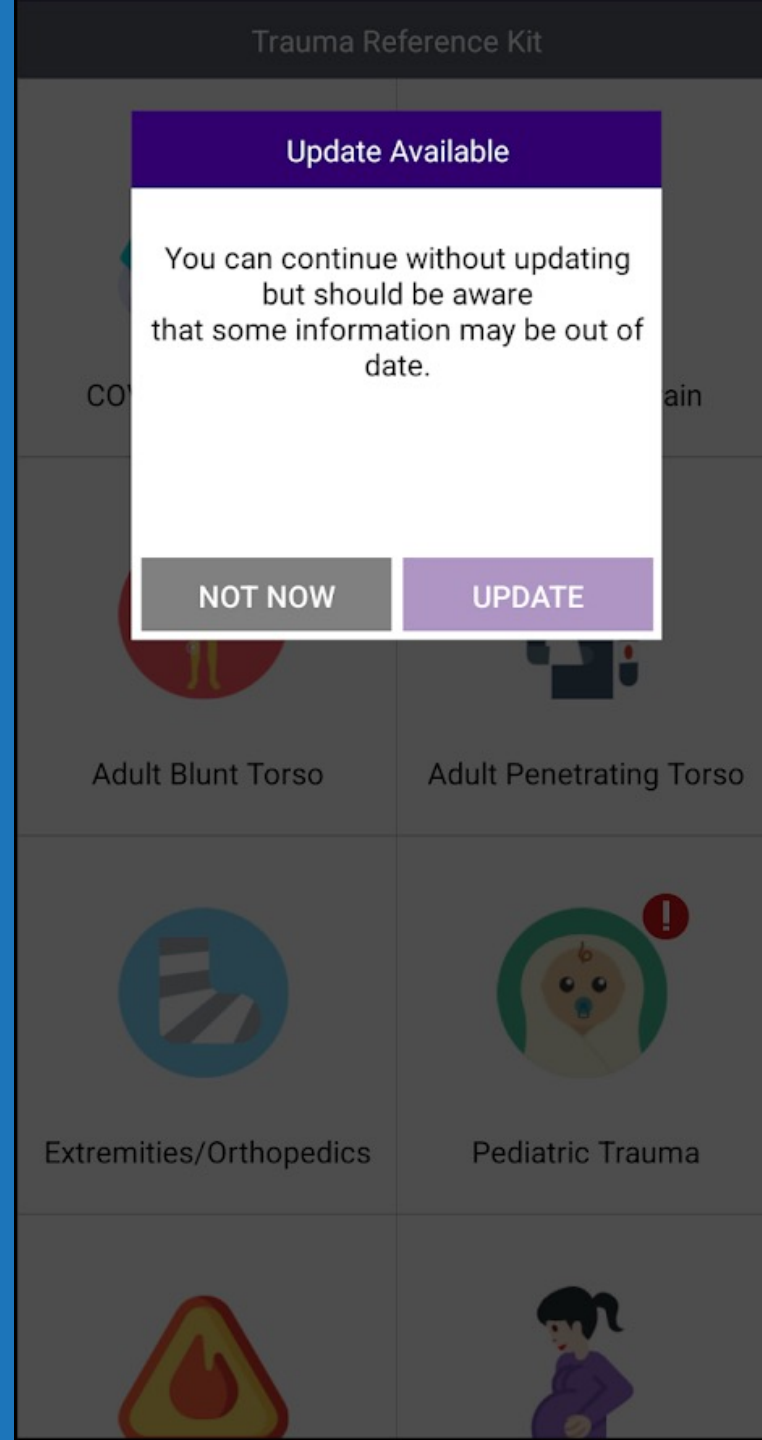
Trauma Medical Director

Reviewer Name(s):

Michael Glenn

Served intelligently

tactuum.com



Cerebrovascular Injury

▼ References

1. Anto VP, Brown JB, Peitzman AB, et al. Blunt cerebrovascular injury in elderly fall patients: are we screening enough? World J Emerg Surg 2018;13:30.

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Michael Glenn

What Tactuum do

 **QURIS** Clinical Companion (+ EcoSystem)

 **QURIS** Patient Companion

Digital Innovation Digital Front Door, Virtual Wards, Staff/Patient Portals, and more...

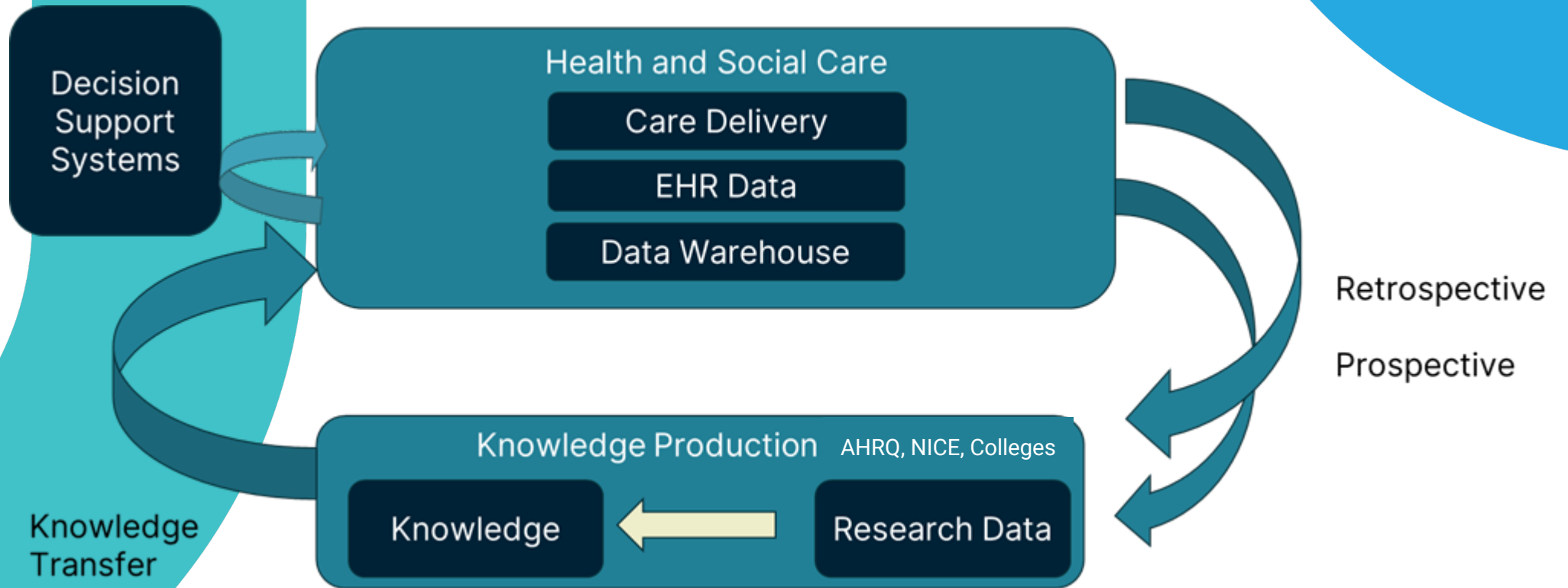


Turning words into actions, now!

Making your guidelines, policies and protocols impactful, effective and measurable



Health Learning System



Learning Health System – Data Flow

Decision support spectrum

Knowledge driven
User driven/Passive
Disparate/Disconnected

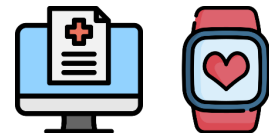
Data driven
Automated/Active
Integrated (clinical workflow)



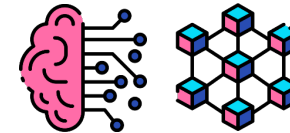
Guidelines (digital)
Formularies (online)



Calculators
Scoring tools



EPR alerts
Data collection



Automation
Discovery (AI/ML)

Decision support spectrum

Knowledge driven
User driven/Passive
Disparate/Disconnected

Data driven
Automated/Active
Integrated (clinical workflow)



SNOMED CT
The global language of healthcare

ICD-10

AGREE
ANNUAL OF GUIDELINES RESEARCH & EVALUATION

CDS HOOKS™

HL7 FHIR

CPGonFHIR

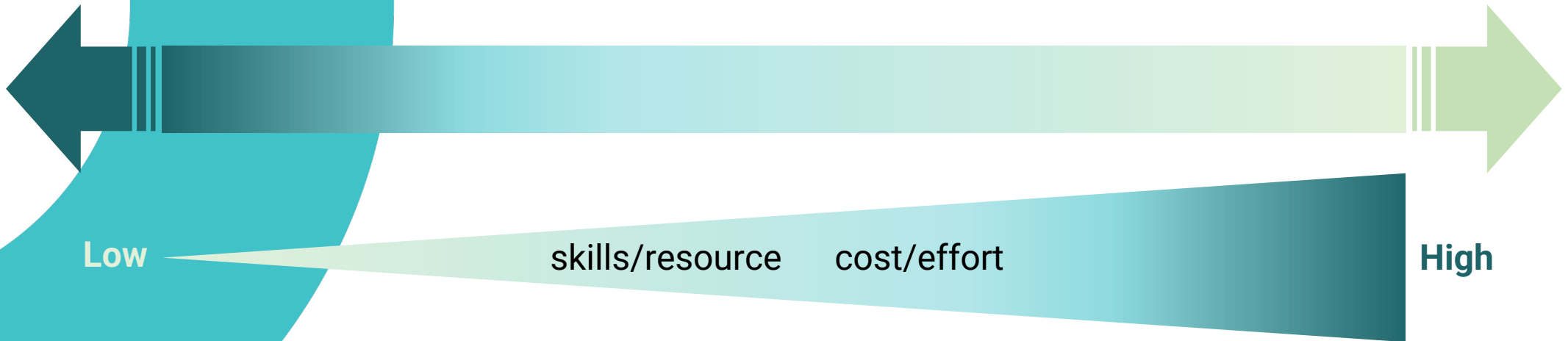
SMART®

openEHR

A key challenge

**Knowledge driven
User driven/Passive
Disparate/Disconnected**

**Data driven
Automated/Active
Integrated (clinical workflow)**



Quris approach/success





QURIS - benefits

Improve **productivity** - by reducing time searching/accessing key resources.

Improve **resilience** – by ensuring access to key resources at all times.

Improve **standardisation** – by removing barriers to accessing your clinical protocols/guidelines.

Improve **clinical governance**

Improve **organisational compliance**

Improve **staff satisfaction/retention**

Improve **clinical care**



QURIS - principles

Standardization

Collaboration

Sharing

Standardization

Templates

Guideline – Content Template

Title*: Short descriptive name for content (50 Characters) – Search weighting +16

Click or tap here to enter text. 50 Char. Max

Keywords: Terms that assist in search. Not necessary to repeat words used within title. – Title search weighting is +16, Keyword search weighting +8 all other fields +1. Search is triggered on the third character typed.

Keywords separated by commas

Web – Mobile Display: Default is for content to be displayable on both web and off-line mobile devices. Check web only if the content would never be used on an off-line mobile device, such as Human Resource documents.

Web Only Content

Web and Mobile Content Should this content be part of a [Reference Kit?](#)

Contact Information to discuss reference Kit: Name: _____ Email/Phone _____

Organization*:

Hospital A

Hospital B

Clinic A

Content Type*: Terms that best describe the content to post.

Guideline

Protocol

Care Pathway

Algorithm

Checklist

Contact

Form

Procedure/Process

Policy

Drug Information

GME Information

Other:

Content*: (DO NOT INCLUDE PHI)

Objectives: The overall objective(s) or purpose of the guideline.

Click or tap here to enter text.

Scope: The clinical question(s) the document covers are (are) specifically described.

Click or tap here to

enter text.

Audience: The patients to whom the document is meant to apply are specifically described.













Click or tap here

to enter text.

Collaboration

International, National and Organizational

The screenshot displays the 'Prescribing Companion' website interface. At the top left is the logo, which consists of a stylized 'R' and 'C' inside a circle above the text 'Prescribing Companion'. To the right of the logo is the text 'Prescribing Companion' and a search bar with the placeholder text 'Search...'. Below the search bar is a navigation menu with links: 'Toolkits', 'Contact Us', 'About', 'SPARC Prescribing Companion App FAQs', 'Notifications', and 'Disclaimer'. The main content area features a grid of 12 country cards, each with a flag icon and the country name below it. The countries shown are Bangladesh, Bhutan, Eswatini, Ghana, India, Indonesia, Kenya, Laos, Malawi, Nepal, Nigeria, and Pakistan.

 Bangladesh	 Bhutan	 Eswatini
 Ghana	 India	 Indonesia
 Kenya	 Laos	 Malawi
 Nepal	 Nigeria	 Pakistan

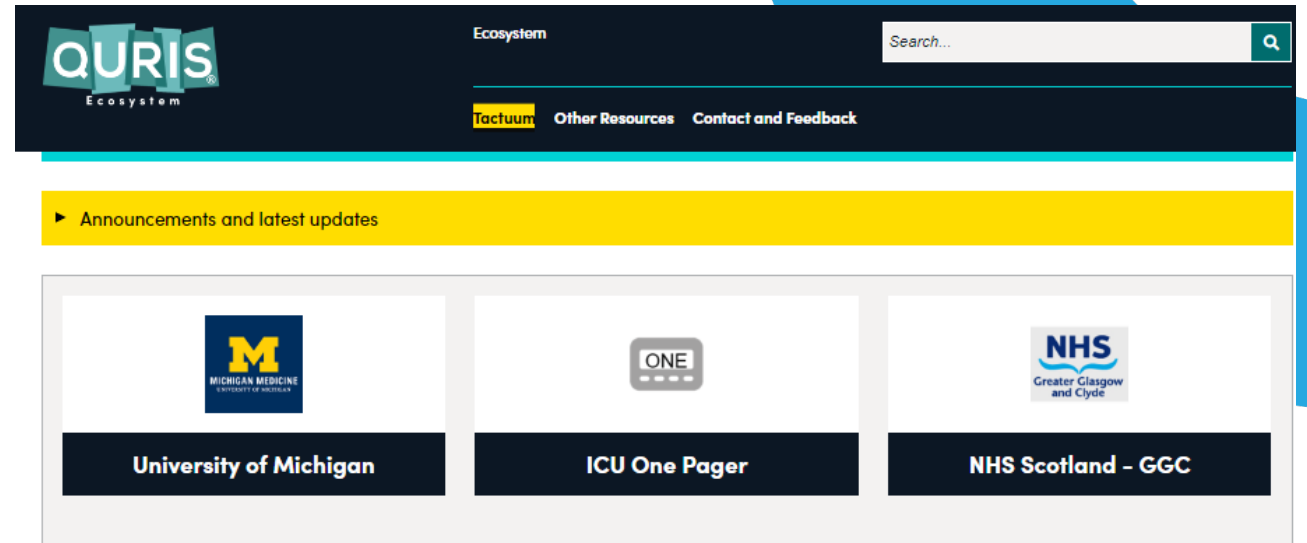
Sharing

Re-use, shared libraries, EcoSystem



“I am in India for a 3-month sabbatical. There are many people within trauma centers that are routinely using the Quris and the ecosystem. Many, many thanks for letting us share our protocols with the rest of the world.”

Dr. Raghavendran, Jan 2024



Is it really free?

Yup, we are learning that many organizations have done amazing work developing actionable clinical guidance and also have a mission to improve worldwide healthcare. We want to support this effort.

Why this content? Why not go directly to the research?

You can go directly to the research and we encourage you to do so but if a similar organization has shared content on a needed subject, you may be able to shorten your development time and save precious clinical time.

Can I change the content to meet our local needs?

Yes. It is very important to properly review any content that you will reuse and localize it for your patient population, staff, and supplies. We encourage that content gets the same scrutiny as any policy document created within your organization.

Who owns the content?

Nobody. The content on this site is covered by a creative commons license to freely share and adapt. Similar to the open-source software concept we hope and encourage sharing and crowdsourcing ongoing development of the best guidance.

We have great content we would like to share. How can I post content?

How to re-use the content?

For our Quris clients send us a note and we will make the content available in your web and mobile app.

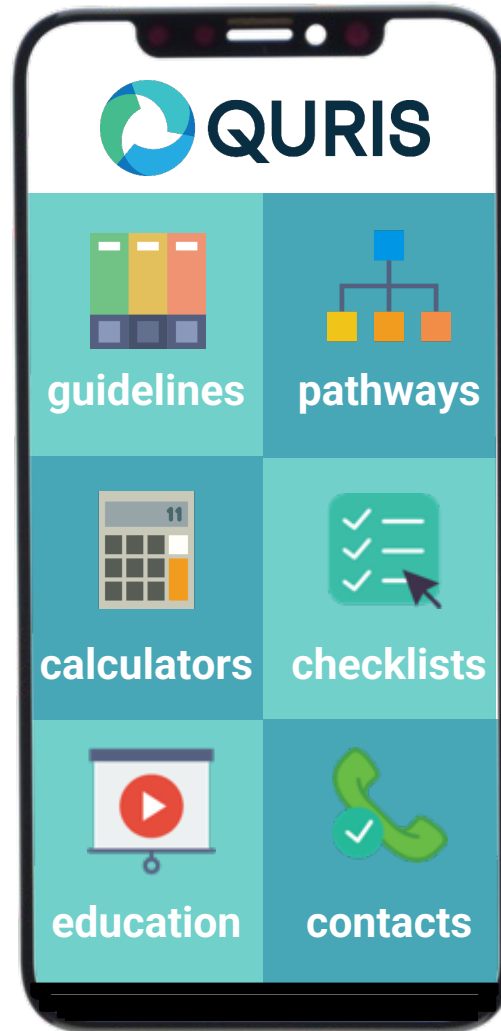
For non-Quris partners, the easiest way to get the content is to print from your browser in a PDF format.

ecosystem.tactuum.com

guidelines, procedures,
handbooks

interactive tools

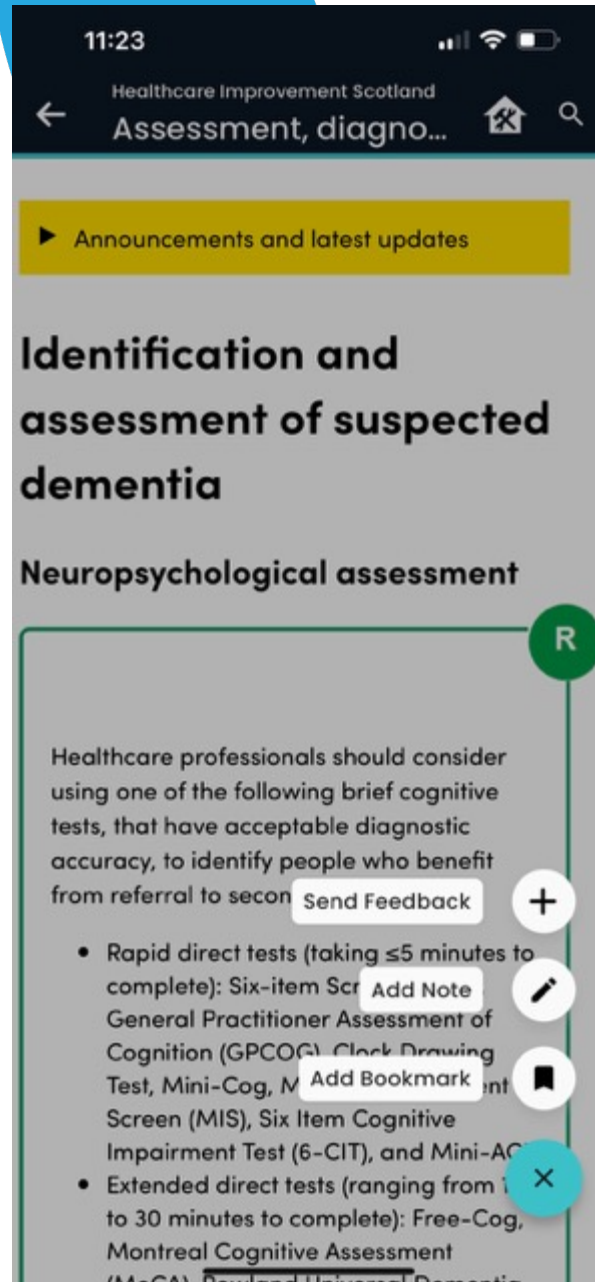
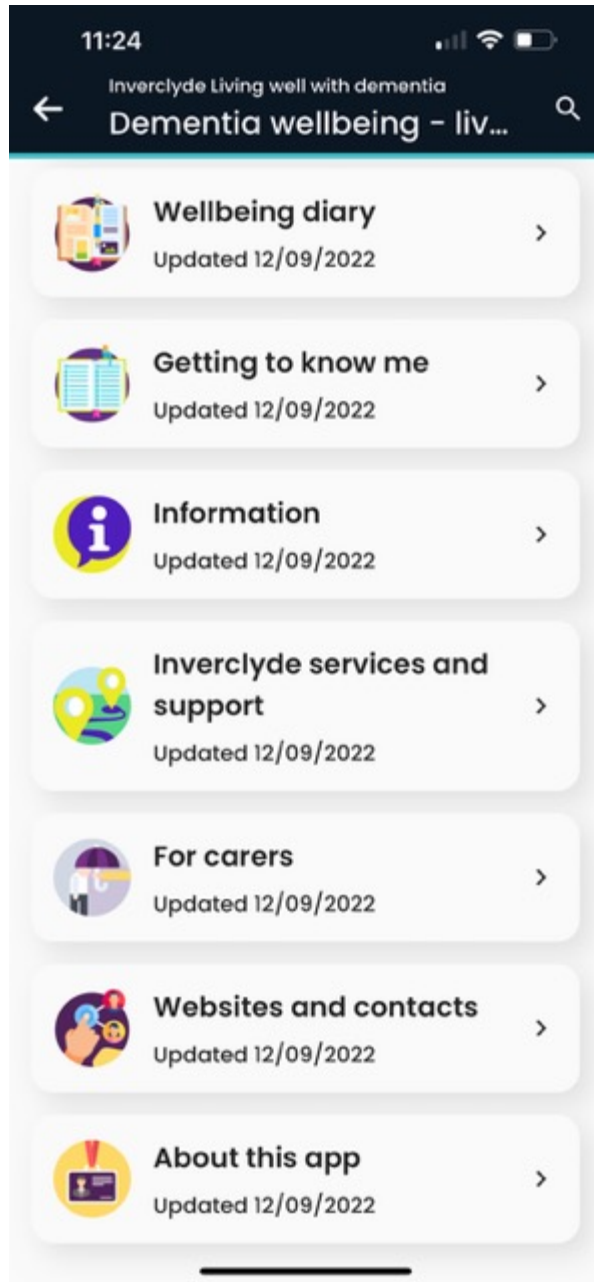
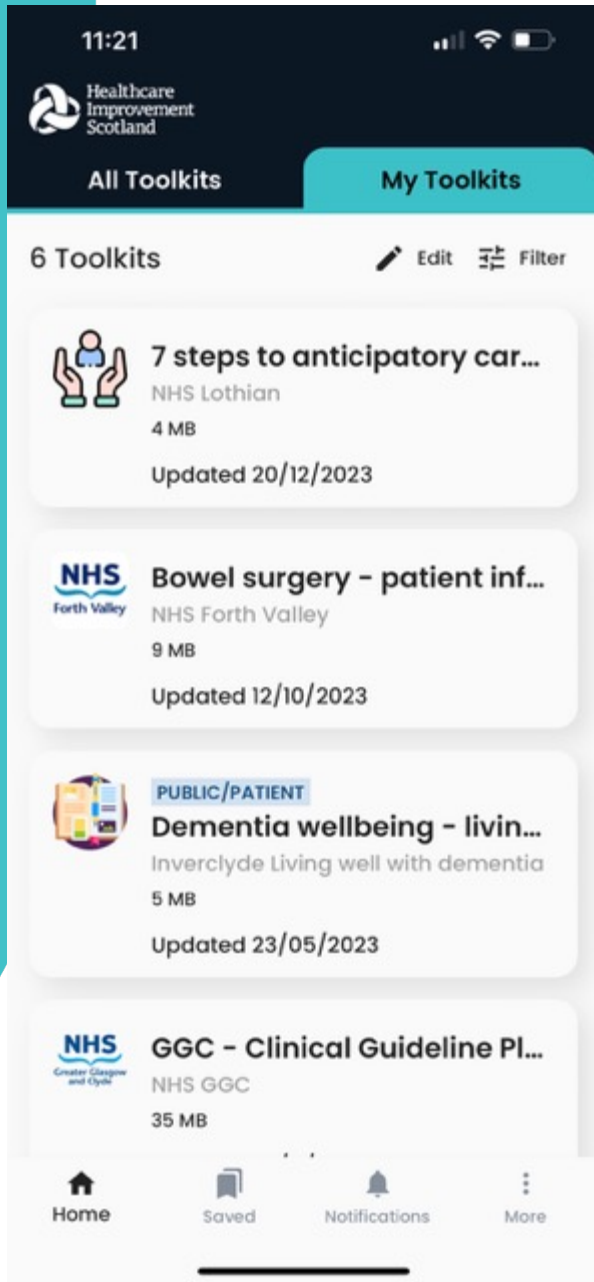
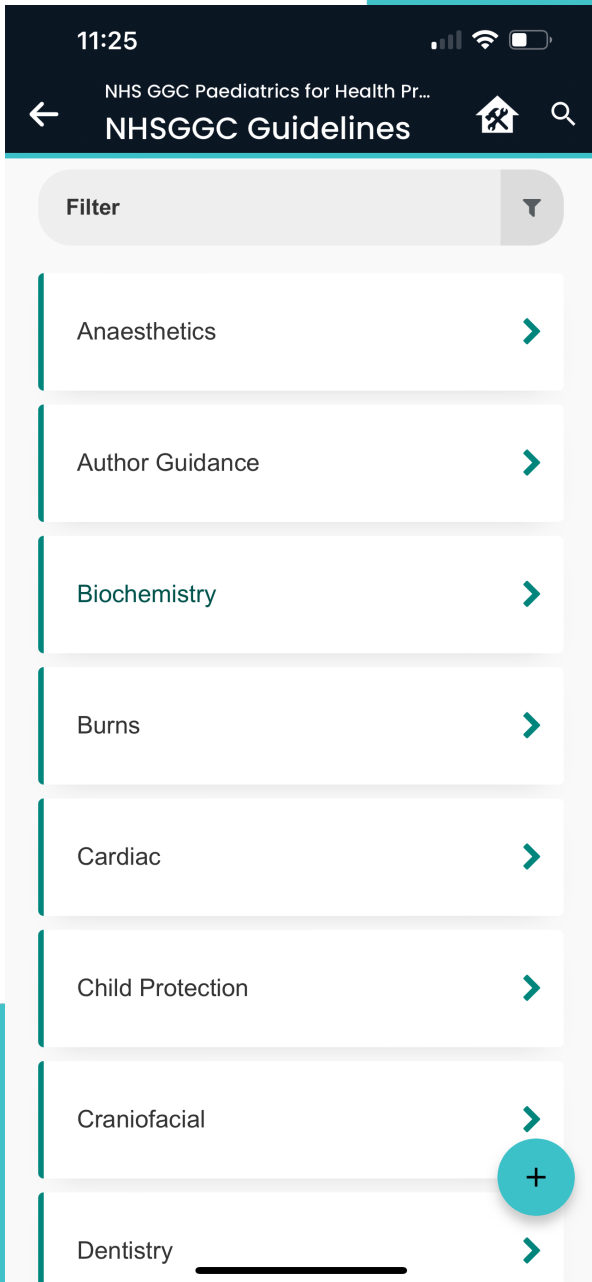
education & training



pathways, protocols

checklists, data forms

contact lists



15:35

Prevention of Medication-Related Osteonecrosis of the Jaw

Introduction

Drugs Associated with MRONJ

Assessing Patient Risk

Initial Management

Continuing Management

Flowcharts and Tools

15:36

List of drugs associated with MRONJ

Drug name	Trade names(s)	Indication
alendronic acid (bisphosphonate)	Binosto® Fosamax® Fosavance®	osteoporosis
risedronate sodium (bisphosphonate)	Actonel® Actonel Combi®	osteoporosis Paget's Disease
zoledronic acid (bisphosphonate)	Aclasta® Zometa®	osteoporosis Paget's Disease treatment of cancer
ibandronic acid (bisphosphonate)	Bondronat® Bonviva® Iasibon® Quodixor®	osteoporosis treatment of cancer
pamidronate disodium (bisphosphonate)	Aredia®	Paget's Disease bone pain treatment of cancer
sodium clodronate (bisphosphonate)	Bonefos® Clasteon® Loron®	bone pain treatment of cancer
denosumab (RANKL inhibitor)	Prolia® Xgeva®	osteoporosis treatment of cancer
bevacizumab (anti-angiogenic)	Avastin®	treatment of cancer
sunitinib (anti-angiogenic)	Sutent®	treatment of cancer
afibercept (anti-angiogenic)	Zaltrap®	treatment of cancer

N.B. This list is not exhaustive. Be aware that drug trade names can change and new drugs may be released that may be implicated in MRONJ.

15:36

East Region

Conditions A-Z

Grid of letters A-Z for navigation:

A B C D

E F G H

I J K L

M N O P

Q R S T

U V W X

Conditions A-Z | Medicines A-Z | Decisions

15:37

East STAGING

Topical treatment

A Topical treatment

1

Benzoyl peroxide

OR

Clindamycin

OR

Adapalene

2

Combination product recommended first line in the treatment of mild acne that is mostly inflammatory in nature

Adapalene + Benzoyl peroxide

OR

Combination product for the treatment of mild to moderate acne. It may enhance compliance compared to the two products individually

~~Benzoyl peroxide + Clindamycin~~

Fever in past 24 hours

No 0

Yes +1

Absence of cough or coryza

No 0

Yes +1

Symptom onset 3 days or less

No 0

Yes +1

Physical exam findings

Purulent tonsils

No 0

Yes +1

Severe inflammation of tonsils

No 0

Yes +1

Total Centor Score : 3

Result: Consider rapid strep testing and/or culture.

Probability of strep pharyngitis 28-35%

- 1 Fever in past 24 hours
- 0 Absence of cough or coryza
- 1 Symptom onset 3 days or less
- 1 Purulent tonsils
- 0 Severe inflammation of tonsils

Reset Export PDF

12:38

NEWS

Respiration Rate 9 - 11 1

Oxygen Saturations 92 - 93 2

Any Supplemental Oxygen Yes 2

Temperature 36.1 - 38.0 0

Heart Rate 91 - 110 1

Systolic BP 111 - 219 0

Conscious Level V, P or U 3

Total score : 9

Assess →

12:38

NEWS

ACUTE ADULT

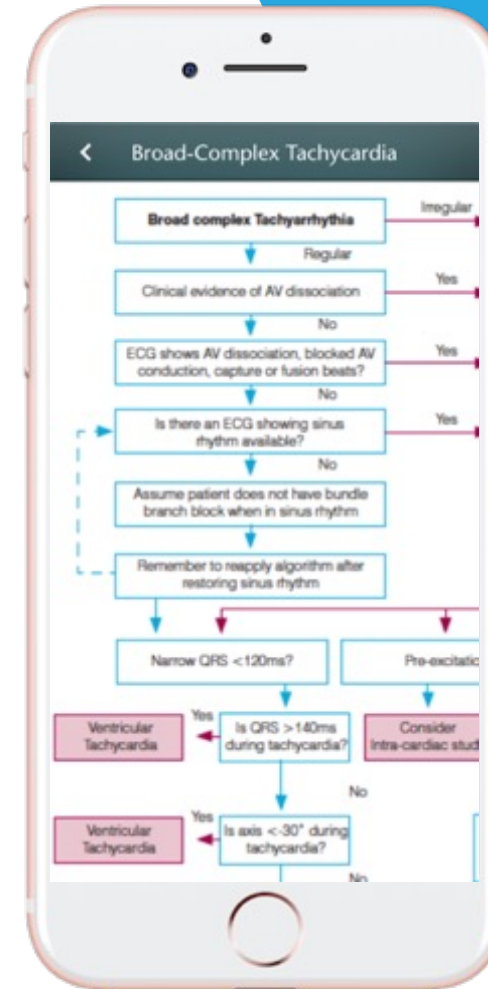
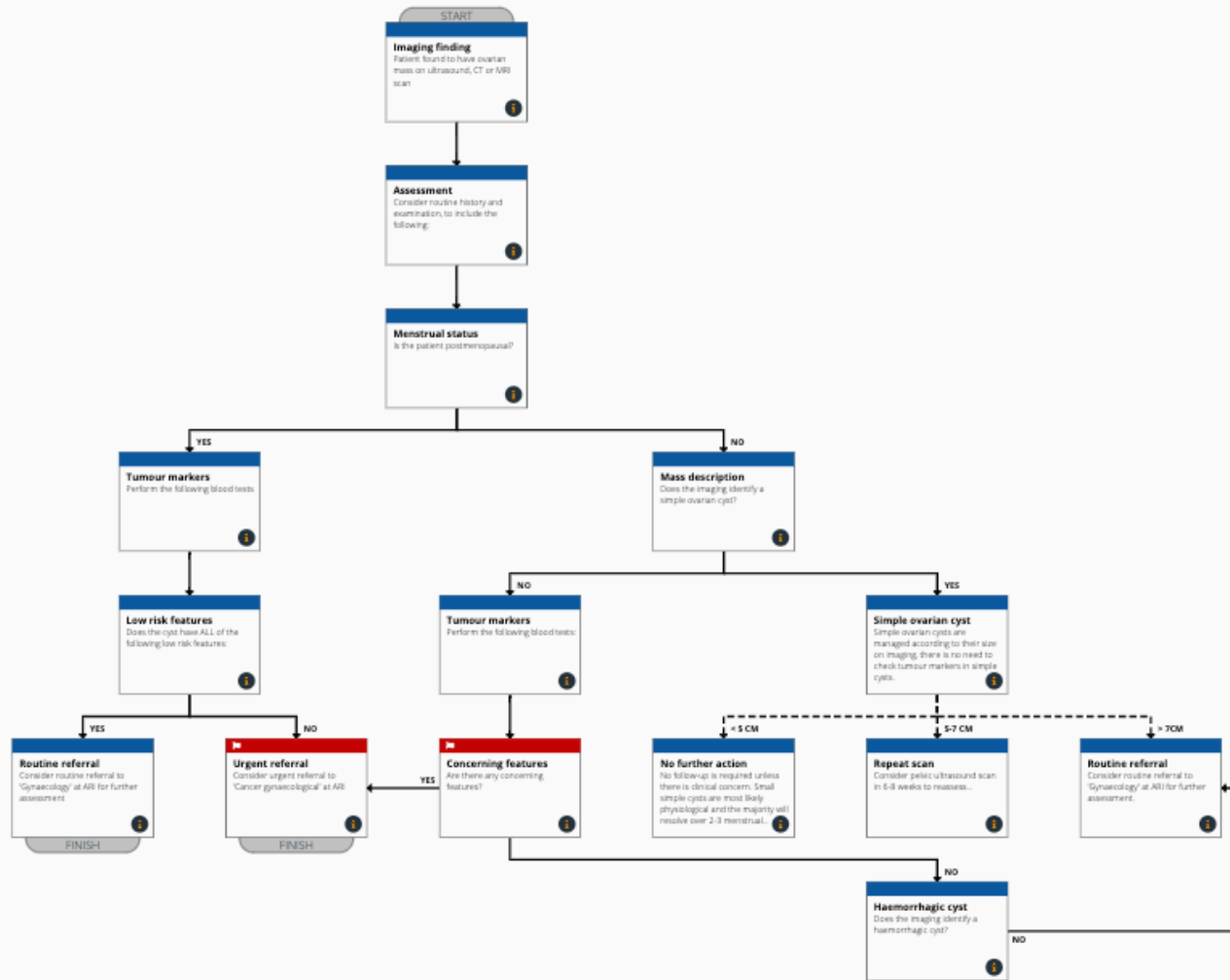
NEWS SCORE ≥ 4 - SCREEN FOR SEPSIS NOW

High Clinical Risk

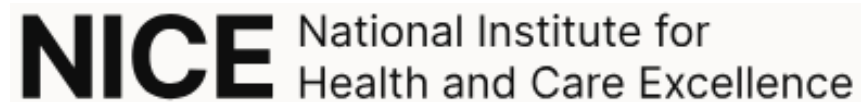
NEWS Score	9
Frequency of monitoring	Continuous monitoring of vital signs
Clinical Response / Action	Refer to local escalation policies

Medical calculators, risk scoring calculators

Ovarian mass - ultrasound finding



Clients/Collaboration



Key takeaways...

- **Standards** & templates drive efficiency
- **Collaboration** promotes improvement and discovery
- **Sharing** promotes collaboration and is just a good thing to do!
- Delivery of CPG can take **many forms**
- User-centered design - focus on end-user needs to deliver **practical utility**

Question & Answers...

Further info.



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