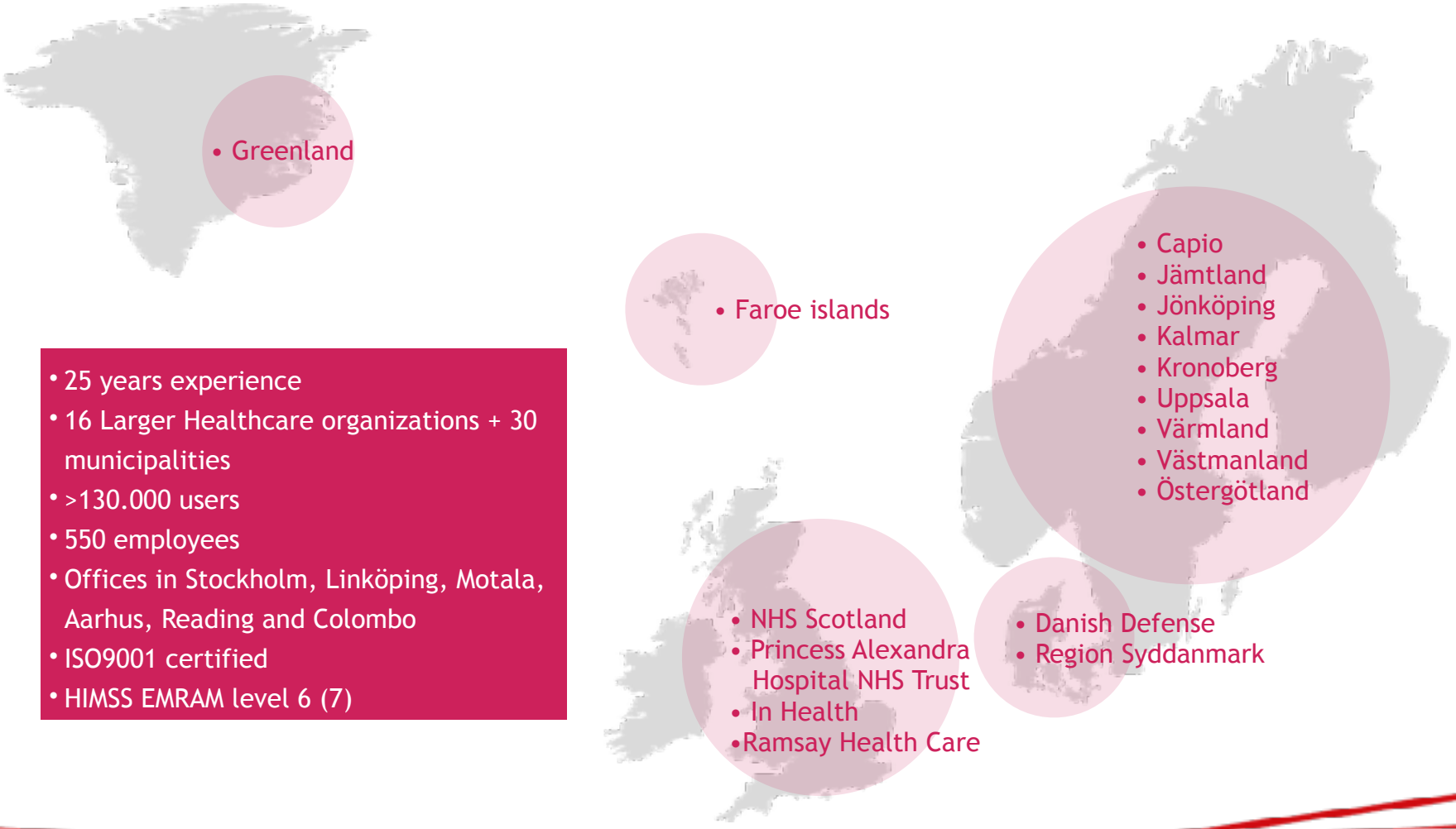
Innovation in Health Care

Cambio Healthcare Systems

Tomas Mora Morrison, SVP & Founder

CAMBIO

Cambio has successfully developed a market leading standard EHR solution and an attractive suite of related e-health solutions with customers in Sweden, Denmark, Greenland, Faeroe Islands and the United Kingdom



- 25 years experience
- 16 Larger Healthcare organizations + 30 municipalities
- >130.000 users
- 550 employees
- Offices in Stockholm, Linköping, Motala, Aarhus, Reading and Colombo
- ISO9001 certified
- HIMSS EMRAM level 6 (7)

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Cambio COSMIC (Compliant Open Solution for Modern Integrated Care)

- Regional Electronical Healthcare Record
- Designed for publicly financed healthcare systems
- Proven track record within integrated care
- Innovator within Mobility, Clinical Decision Support and Patient Empowerment
- Leader in integration to national e-health solutions in the Nordics

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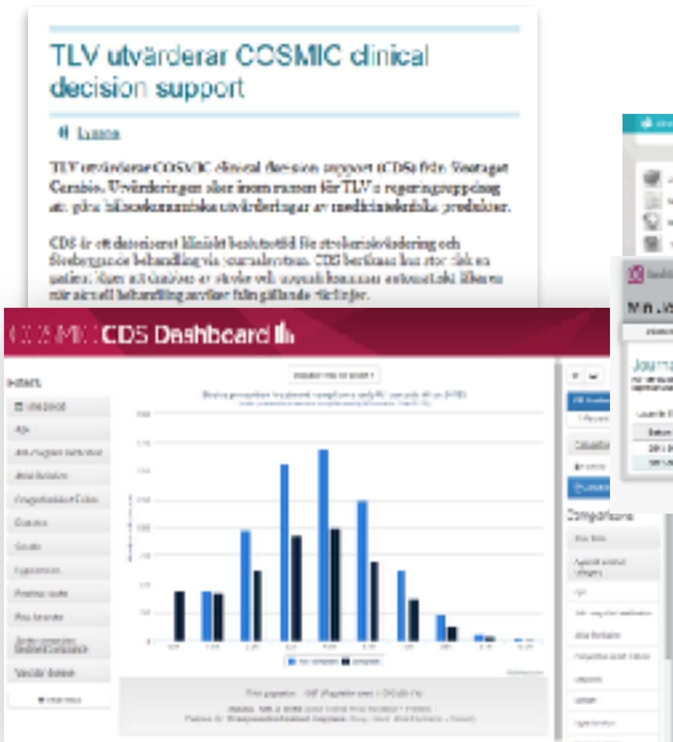
We are among the lead innovators in areas such as Clinical Decision Support, Patient Empowerment and Mobile enablement

Clinical Decision Support

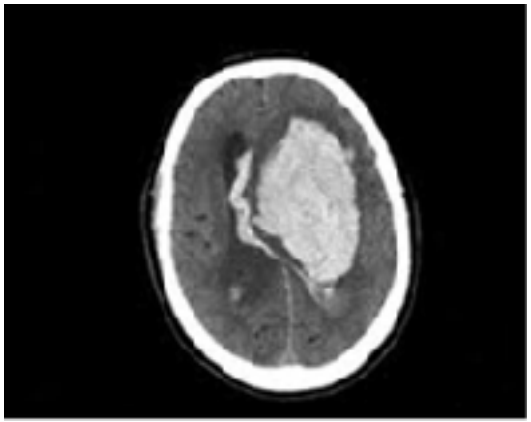


Patient Empowerment

Mobility

Innovation in Health Care - Clinical decision support for stroke prevention in atrial fibrillation

The Problem - Atrial fibrillation (AF) is associated with substantial morbidity, in particular stroke. Despite good evidence for the reduction of stroke risk with anticoagulant therapy, ***there remains a significant undertreatment***.



How big is the problem?

- 30 000 strokes/year (totally in Sweden)
- Stroke leads to disability
- Impair the patient's quality of life and even for the relatives
- 30 %* - 38 %** of all strokes are caused by atrial fibrillation
- If, with a conservative assumption, 20 % of all strokes are caused by atrial fibrillation, the cost of hospitalization and care is € 525 millions, just in Sweden!
- € 63.000 – The cost of rehabilitation first year after a stroke

Ref: *Lang et al, Stroke 2017, 1 February **Björck et al. Stroke 2013;44:3103-3108

The Solution

Waran® (Warfarin)

Pradaxa®
(Dabigatran)

Eliquis® (Apixaban)

Xarelto®
(Rivaroxaban)

Lixiana® (Edoxaban)

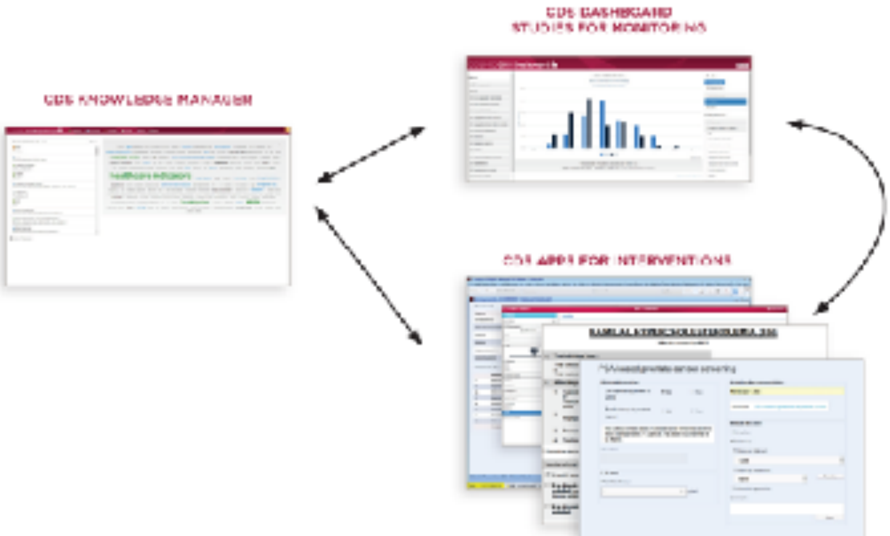
The Solution

- Congestive heart failure
- Hypertension
- Age ≥ 75
- Diabetes mellitus
- Stroke/thromboembolism
- Vascular disease
- Age > 65
- Sex category

$CHA_2DS_2VASc \geq 1$ = Anticoagulant treatment

The innovation

Technology
Cambio CDS Platform



Domain expertise
Cardiology department Region Östergötland

Clinical decision support for stroke prevention in atrial fibrillation (CDS-AF): Rationale and design of a cluster randomized trial in the primary care setting

Lars O. Karlsson, Staffan Nilsson, Emmanouil Charitakis, Magnus Bång, Gustav Johansson, Lennart Nilsson and Magnus Janzon, Norrköping, Sweden

Background Atrial fibrillation (AF) is associated with substantial morbidity, in particular stroke. Despite good evidence for the reduction of stroke risk with anticoagulant therapy, there remains a significant undertreatment. The main aim of the current study is to investigate whether a clinical decision support tool for stroke prevention (CDS) integrated in the electronic health record can improve adherence to guidelines for stroke prevention in patients with AF.

Methods We will conduct a cluster randomized trial where 43 primary care clinics in the county of Östergötland, Sweden (population 444,347), will be randomized to be part of the CDS intervention or serve as controls. The CDS will alert responsible physicians of patients with AF and increased risk for thromboembolism according to the CHA_2DS_2VASc (Congestive heart failure, Hypertension, Age ≥ 74 years, Diabetes mellitus, previous Stroke/TIA/thromboembolism, Vascular disease, Age 65-74 years, Sex category [i.e. female sex]) algorithm without anticoagulant therapy. The primary end point will be adherence to guidelines after 1 year.

Conclusion The present study will investigate whether a clinical decision support system integrated in an electronic health record can increase adherence to guidelines regarding anticoagulant therapy in patients with AF. (Am Heart J 2017;187:45-52.)

DEMO

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Finding evidence

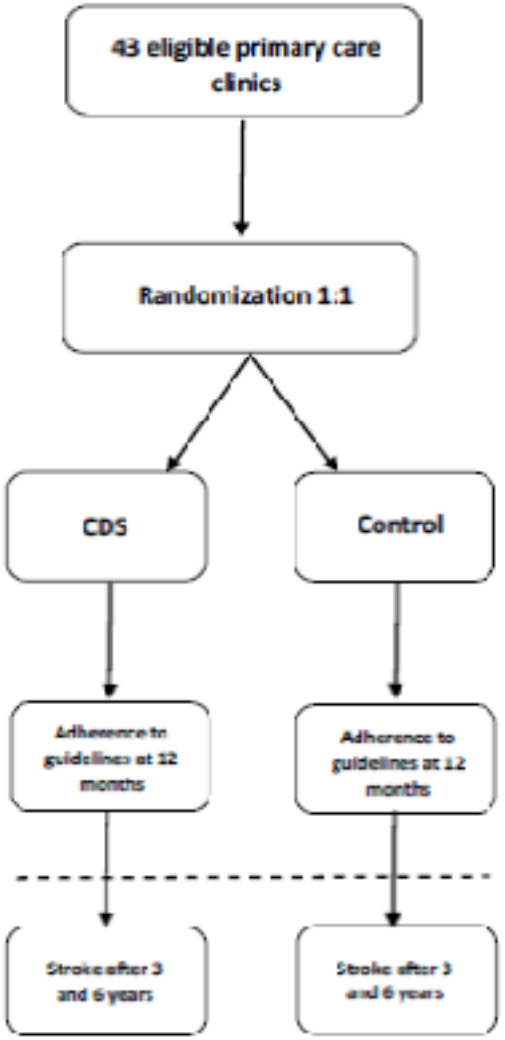
Pilot Study September-November 2014: Five units including 113 physicians. Usability testing. Is the CDS tool fit for purpose?

Clinical study, a cluster randomized trial in the primary care setting, 2016: Will a clinical decision support system for stroke prevention in AF can increase adherence to guidelines in the primary care setting compared to standard care?

Conclusion of the clinical study

- **The first randomized study demonstrating beneficial effects with a clinical decision support tool regarding stroke prevention in patients with AF.**
- High baseline compliance rate, (both in national and international comparison)
- No adverse effects of the clinical

Results for Region Östergötland in numbers
Patients inititated on anticoagulant therapy due to CDS ≈ 140
Equals prevention of at least 10 strokes in the region (if all primary care centers use the CDS application)
Rehabilitation of one (!) stroke in Sweden ≈ € 60,000
10 * € 60,000 = € ***600,000*** ***(corresponds to € 12,000,000 for Sweden)***



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Success factors

- Triple Helix Model – Healthcare, Academia, Industry
- Engaged and empowered ambassadors within the Healthcare organization
- Top management Buy-in

Epilog

- A new stroke related clinical decision support is under development and will be deployed during 2019 (12-months randomized clinical trial in at least two Swedish regions)
- More than 100 clinical decision support applications in different clinical specialties have been developed based on Cambio's CDS Platform since the start of the collaboration with Region Östergötland
- Cambio has sold the CDS Platform to 8 of 20 Healthcare Regions in Sweden and to NHS Scotland and is planning for a rapid international expansion