



Markörbaserad journalgranskning (MJG) – ett effektivt verktyg mot vårdskador

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Adverse events and patient injuries – a global problem

- One of the most important aspects of all healthcare is patient safety, never the less adverse events is one of the biggest problems.
- In Sweden adverse events was calculated to cost society 7-8 billion SEK in 2013 and investigations point at > 3 500 preventable deaths per year
- We are all familiar with the problem and we all work with it, one way or another, regardless if we working in healthcare or providing service to healthcare
- But adverse events are hard to define, identify and monitor over time, especially common complications that are not treated as adverse events

The session

- This session will look into what happens when an established method for retrospective analysis is automated and used in a wider perspective and how existing information can be used in a cost efficient way
- Structured analysis of medical records - this is a well establish method that started to be used in the last century and has since then spread rapidly over the world – because it works
- Global Trigger Tool (GTT) and other similar methods all focus on retrospective analysis of existing records to measure occurrences and frequencies of adverse events and patient injuries
- We just need to remember that the method itself does not improve patient safety, it just puts the spotlight on the problem in a structured way and provides the tools to monitor frequency and occurrence. Awareness and common view of the problem is key factors for change

Use of Marker based medical record analyses

- In Sweden Global Trigger Tool (GTT) has been used since 2007 and already in 2011 50% of all hospitals used the method in one way or another in their structured improvement work
- Structured analyses of medical records is now a national quality indicator for all hospitals and a national standardised method has been created - *Marker Based Medical Record Audits*¹
- There are some differences compared with original GTT
 - Injuries are divided in preventable injuries and injuries
 - Some of the triggers are changed, adapted to the Swedish context

1. <http://webbutik.skl.se/sv/artiklar/markorbaserad-journalgranskning-for-att-identifiera-och-mata-skador-i-varden.html>

What role does a EMR vendor play in this?

- First of all, our aim is also to improve patient safety
- The aim of all methods that measure patient safety, or any other outcomes of processes, is to improve. Find out what can be done better, change the process and then measure again.
- Our role is primarily to handle all the information in the EMR and provide the right tools to speed up the feedback loop.
- To measure faster and provide feedback faster is key for all change management

The eight steps of the Swedish model

1. Find all suitable admissions
2. Create a randomised selection of the admissions (20-40/hospital/month)
3. Make sure the whole hospital spell is covered for the admissions
4. Trained nurses then searches the medical records for defined markers
5. Records with identified markers are audit by a trained team, nurses and doctors, and injuries are identified
6. The injuries are then defined as preventable injuries or injuries
7. Frequency and occurrences are compiled and compared over time
8. The result of the audit is then used for further analysis and improvements in the organisation

What can an EMR with structured information provide in this process?

- Automation and integration!
- Step 1- 4 can be completely automated and integrated in the EMR.
 - Step 4 might require some adjustment of how information is handled in the medial record. Moving free text into structured information to find more markers etc, which is simple when the aim of the change is clear for the organisation
- All effort from the trained team can be put on the audit in step 5-6. The audit itself can be more efficient if the tool is integrated in the EMR
- The results are automatically compiled and visualised in step 7
- The organisation can then focus on how to improve processes in step 8

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An example on what an integrated tool can look like

Markörbaserad journalgranskning

Triggers:
 Sök kontakter med minimum trigger/-s
 Sök specifika triggers
 Visa granskade

Kontakt Slut:
 From:
 To:

Obs! Informationen hämtas från COSMICs statistikdatabas. Det betyder att förändringar gjorda i COSMIC efter 2013-11-15 23:12 ej kan ses här.

Granskad	Personnummer	Namn	Kontakt ID	Kontakt Start	Kontakt Slut	Vårdande enhet	Trigger
<input type="checkbox"/>	19 900624-2383	Test, Vickan	304055	2010-01-14	2010-01-19	The Orthopedic clinic	A9_F5 ,J4 ,K4 ,N3
<input type="checkbox"/>	19 721106-6423	Stewart, Kristen	304133	2010-01-15	2010-01-18	Psychiatric Unit	A10,A16,A17,A2 ,A7 ,J4 ,K1 ,K3 ,K5 ,K7 ,L2 ,N4
<input type="checkbox"/>	19 751023-5927	Hultcrantz, Johanna	304510	2010-01-18	2010-01-21	Psychiatric Unit	A11,A17,A5 ,A9 ,F5 ,F6 ,J4 ,K3 ,K5 ,N1 ,N3 ,N4
<input type="checkbox"/>	19 751123-8235	Testpatient, Matias	306264	2010-01-19	2010-01-19	The Orthopedic clinic	A1 ,A12,A4 ,A9 ,F6 ,J4 ,K2 ,K6 ,L1
<input type="checkbox"/>	19 900624-2383	Test, Vickan	307385	2010-01-19	2010-01-20	The Orthopedic clinic	A10,A12,A13,A2 ,A3 ,A8 ,J1 ,J5 ,K2
<input type="checkbox"/>	19 680214-9283	Gravid, Amma	313108	2010-01-20	2010-01-25	The Orthopedic clinic	A10,A11,A6 ,A7 ,A8 ,A9 ,F6 ,J1 ,J4 ,K3 ,L1 ,N1
<input type="checkbox"/>	19 310811-9193	Testarl, Martin	314976	2010-01-26	2010-01-26	The Medicine clinic	A15,A4 ,A5 ,F1 ,F6 ,J4 ,K5
<input type="checkbox"/>	19 900109-2387	Johanna Svensson,	317025	2010-01-29	2010-01-29	MED mott	A1 ,A13,A14,A2 ,A7 ,A9 ,F3 ,J4 ,J5 ,K2 ,K5
<input type="checkbox"/>	19 760910-2954	Real, Self	317194	2010-01-29	2010-01-29	ORT mott 1	A2 ,A4 ,J2 ,J4 ,L1 ,N1 ,N2 ,N5
<input type="checkbox"/>	19 751123-8235	Testpatient, Matias	317334	2010-01-29	2010-01-29	The Orthopedic clinic	A3 ,A6 ,F1 ,J4 ,K2 ,K4 ,L2 ,N5
<input type="checkbox"/>	19 721106-3503	Aman, Malinda_test1	317532	2010-01-29	2010-01-29	The Orthopedic clinic	A10,A12,A13,A15,A17,A2 ,J3 ,J4 ,K1 ,K2 ,N1 ,N4
<input type="checkbox"/>	19 700612-1144	Martinsson, Maria	317598	2010-01-29	2010-01-29	The Orthopedic clinic	A12,A14,A8 ,J1 ,J4 ,K1 ,K2 ,K3 ,K7 ,L1 ,L2 ,N4
<input type="checkbox"/>	19 700612-1144	Martinsson, Maria	317685	2010-01-29	2010-01-29	The Orthopedic clinic	A1 ,A10,A12,F2 ,J3 ,K3 ,N1 ,N5
<input type="checkbox"/>	19 700612-1144	Martinsson, Maria	317718	2010-01-29	2010-01-29	The Orthopedic clinic	A1 ,F2 ,J4 ,L1 ,L3 ,N3
<input type="checkbox"/>	19 121212-1212	Tolvansson, Tolvan	317756	2010-01-29	2010-01-29	ORT mott 1	A11,A13,A18,A2 ,A4 ,A7 ,F3 ,J2 ,J4 ,K3 ,N5
<input type="checkbox"/>	19 760910-2954	Real, Self	317835	2010-01-29	2010-01-29	The Orthopedic clinic	A11,A17,A4 ,A8 ,A9 ,F1 ,F5 ,J4 ,K5 ,N2 ,N4
<input type="checkbox"/>	19 900109-2387	Johanna Svensson,	318138	2010-01-27	2010-01-31	MED mott	A11,A12,A4 ,F1 ,J4 ,K2 ,K6 ,N4
<input type="checkbox"/>	19 760910-2954	Real, Self	318255	2010-01-24	2010-02-01	The Orthopedic clinic	A10,A14,F1 ,F6 ,J4 ,K1 ,K3 ,L3
<input type="checkbox"/>	19 900109-2387	Johanna Svensson,	324187	2010-01-30	2010-02-07	MED mott	A1 ,A10,A12,F4 ,F5 ,J4 ,K1 ,K3 ,L1 ,N4 ,N5

Trigger	Förklaringstext
A1	Transfusion
A10	Neurologisk påverkan
A11	Avvikande kroppstemperatur
A12	Positiv blododling
A13	Vårdrelaterad infektion
A14	Överflyttning till högre vårdnivå
A15	Akutbesök inom 2 dygn efter utskrivning från sjuksköterska
A16	Återinskrivning inom 30 dagar
A17	Dokumentation om misslag
A18	Örning
A2	Stroke på sjukhus
A3	Hjärtstopp eller svikt i vitala funktioner
A4	Oplanerad dialysbehandling
A5	Djup ventrombos eller lungemboli
A6	Fall
A7	Trycksår
A8	Blåsaröverflyttad
A9	Tromboflebit eller hudpåverkan
F1	Nedsatt vitalitet hos nyfödd
F2	Förflyttning av mor eller barn
F3	Behandling med terbutalin
F4	Sfinkskada
F5	Inducerad förtöjning
F6	Instrumentell förtöjning
J1	Ventilassosierad pneumoni
J2	Ämnhögning på IVA eller annan högre vårdnivå
J3	Behandling inom intensivvård
J4	Intubation, retribulation, tracheotomi eller kariolektomi
J5	IVA-syndrom
K1	Respiration
K7	Präventiv öronskymning

Selection criteria (points to search filters)

Identified trigger per admission (points to row 19 721106-3503)

Link to select the patient and get access to the medical record (points to name Aman, Malinda_test1)

Selection tool: Sample or population selection – both can be done just as easily

Auditing and reporting tool

Markörbaserad journalgranskning

Sök kontakter med minimum markörer

Utskrivningsdatum

F.o.m

T.o.m

Välj specifika markörer:

- A12 - Positiv blododling
- A13 - Vårdrelaterad infektion
- A14 - Överflyttning till högre vårdnivå
- A15 - Akutbesök inom 2 dygn efter utskrivning från slutenvård
- A16 - Återinskrivning inom 30 dagar

Visa granskade

Sök

Obs! Informationen hämtas från COSMICs statistikdatabas. Det betyder att förändringar gjorda i COSMIC efter 2014-03-02 23:33 ej kan ses här.

◀ ◀ Sida 1 av 9 ▶ ▶

Granskad	Personnummer	Patientnamn	Kontaktstart	Kontaktsslut	Vårdande enhet	Markör
<input type="checkbox"/>	19 900604-3336	Nuwangi	2011-03-01	2011-03-23	MED mott DNC[i.e. Do Not Changed]	A16
<p>Allmänt-Blödning utan op Sannolikt undvikbar F - Bidrog till eller resulterade i temporär skada som krävde vård... <input type="button" value="Lägg till"/></p> <ul style="list-style-type: none"> Allmänt-Blödning utan op / Inte undvikbar / F - Bidrog till eller resulterade i temporär skada som krävde vård... <input type="button" value="Ta bort"/> Allmänt-Hudskada/Ytlig kärlskada / Sannolikt inte undvikbar / G - Bidrog till eller orsakade permanent skada <input type="button" value="Ta bort"/> 						
<input type="checkbox"/>	19 900604 3336	Nuwangi	2011-03-01	2011-03-23	MED mott DNC[i.e. Do Not Changed]	A16 K3 K7

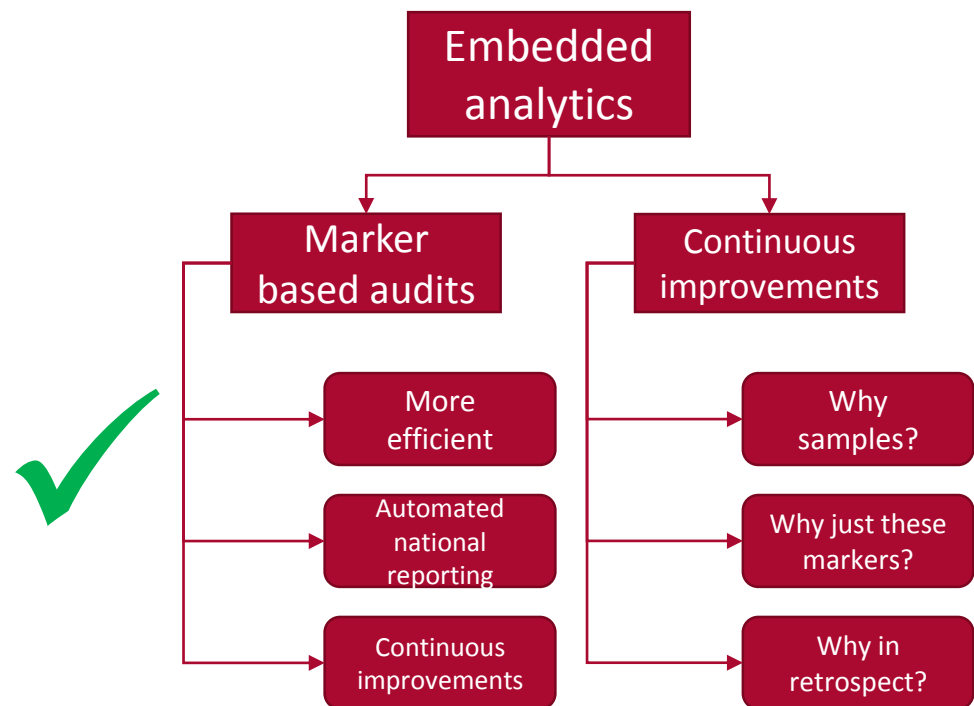
Auditing outcomes are classified and written back to the data warehouse from within the EMR. Very efficient solution for the auditing team and reporting to national registers is automated.

Core features of an integrated tool for e.g. MJG

- Based on existing EMR with structured information and a data warehouse solution
- If structured data is not available for all markers, natural language processing can be used, but it is expensive and not as precise. Our experience is that it is cheaper and more efficient to change into structured reporting in the medical record.
- Reporting and auditing tools for MJG is integrated in the core EMR so it is always available for the end user. One click away – key feature!
- Data warehouse solution allows for write backs in real time
- The end user can then, in a single session:
 - Find an admission with a specific, or arbitrary, set of markers
 - Audit the medical record
 - Register the outcome of the audit

Our work with Capio S:t Görans sjukhus

- S:t Göran hospital is one of two hospitals in Sweden that has used automated searches for triggers for a couple of years
- Working with them to improve the process we found substantial benefits to move the tool inside the EMR



To improve patient safety – that is the mission

- Why not look at all admissions with markers?
 - With an integrated tool S:t Göran thought this is both possible and important. It is easy for each department to work with their admissions continuously and still generate a hospital sample for the national reporting requirements
 - The cost seems to be the same or lower auditing all records with an efficient tool then auditing a selection manually
- Why not include more markers on hospital and/or department level?
 - Why not? With the tool integrated in the EMR the feedback loop is very short witch is essential for both central and local change management so use the data you have!
- Why not measure combinations of critical triggers? Or specific triggers for specific patient groups?
 - Just do it! Don't ask, don't talk – act!

To improve patient safety – that is the mission

- Why just look retrospectively? Why wait 30 days after a discharge to start the analysis?
 - It is not part of the verified method!
 - True! But MJG (and GTT) is a measuring tool – it does not affect occurrences nor frequency of patient injuries.
 - Using the same tools, the same staff, some of the same triggers but in **real time**, you get a very potent early warning system that give your organisation a chance to act **before** an injury occurs.
 - Since we are using a well known and implemented method the move to real time auditing is easy and comes natural to the organisation

Lessons learned from S:t Görän hospital

Niclas Skyttberg, CMO:

- “Basing a new solution on an existing methodology that is already accepted and in use, will meet low resistance in the organisation and is easy to implement
- It’s too early to present any clinical outcomes, BUT we are very positive
- We can see a much higher awareness of patient safety issues and willingness to work with improvements in general when feedback is received near real time. And when the auditing tool is just one click away
- We are now working with implementing Clinical Analytics in a wider way in the organisation. The automation of MJG has worked as a tracer bullet within the organisation”

Summary

- Clinical analytics and the power of the information stored in your existing EMRs need to become available on “the factory floor”. In healthcare it is the factory workers who has the knowledge, the need and the power to change
- The importance of integrating Clinical analytics directly in the EMR can not be understated since it empowers the user
- It doesn't have to be complicated! Use the information you have and the methodologies you already know and have implemented and get started.
- The goal is to improve patient safety – the tools you use or the road you take doesn't matter as long as you can verify your improvements
- The general availability of clinical analytics tool are also driving a more structured medical record and terminology standardisation

Questions?