

IntelliMax

Case Study no 2019/09/09

Fibrinolytic Therapy Implementation and IntelliMax Analytics

Fibrinolytic Therapy Implementation is one of the Core Quality Measures used by the Joint Commission Organization that accredits more than 21,000 US health care organizations and programs. The international branch accredits medical services from around the world.

The purpose of this case Study is to show how this Quality measure can be reported with IntelliMax.

Background:

Time to fibrinolytic therapy is a strong predictor of outcome in patients with an acute myocardial infarction. Nearly 2 lives per 1000 patients are lost per hour of delay (Fibrinolytic Therapy Trialists' Collaborative Group, 1994). National guidelines recommend that fibrinolytic therapy be given within 30 minutes of hospital arrival in patients with ST-elevation myocardial infarction (Antman, 2004).

Introduction:

The application of Quality Measures such as Fibrinolytic Therapy for heart failure clients has become part of the normal daily routine in many hospitals. Hospital management, however, needs to be able to confirm that the application of such measures is being done in all relevant cases - so a mechanism is required to report on the compliance with a given Quality Measure.

This case study illustrates how Intellimax can assist with ensuring that the compliance with Quality Measures is uniformly followed throughout the hospital.

Fibrinolytic Therapy:

When considering the implementation of Fibrinolytic Therapy, the following metrics are relevant:

1. The number of cases where the DRG was related to a Myocardial Infarction
2. Of these, the number of cases where Fibrinolytic Therapy was applied
3. Of these, the number of cases where Fibrinolytic Therapy was applied within 30 minutes of the patient being admitted to hospital.

Hospital Management wants the number of cases where Fibrinolytic Therapy was applied within 30 minutes, to be as high as possible. For an example of such a (compliant) case, see patient "DHE8786", who was admitted on 24 November 2016 – he was admitted for "I214 - Acute subendocardial myocardial infarction":

Single Patient - DEMO - (Ac 2016/11) - 4.0.4.16858 - admin

Patient: DHE8786 - Patient 37020

Visits | Episode of Care | Patient Demographic | Visit Details | Measures | OR Details | Professionals | ICD | Procedure | Contracts | Day Of Stay

Patient's Visit: 197009

Length of stay: 4 days
 Admit date: 24/11/2016
 Discharge date: 28/11/2016
 Age: 80
 Hospital: Hospital 1 - Hospital 1
 In/Out Patient: In Patient
 Contract: Contract 10 - Contract 10
 Readmission #: 0
 RVU Factor: 0
 Parent Visit Code: []

Admit Cost Centre: 025 - South-General
 Admit Source: Self Referral - Self Referral
 Admit type: AC - Acute
 Admit Reference: Admit Reference 10 - Admit Reference 1
 Discharge type: Disch to another H C - Disch to another H C
 Domicile: 0709 - Omiston
 Payment type: Payment Type 17 - Payment Type 17
 Job type: Position 10 - Position 10
 Pregnant: Bacteria: Mortality:

Doctor: Doctor 136 - Doctor 136
 Attending Doctor: Doctor 136 - Doctor 136
 Specialty/Service: Cardiothoracic Surgery
 DRG: F41A - Circulatory Disorders W AMI W In
 ICD: I214 - Acute subendocardial myocardial infarction
 CPT: 1370602 - Administration of packed cells

Calculate Readmission

Classification

Drag a column header here to group by that column.

Code	Name	Description	Classification Value

Actual/Standard Profit | Update | Cancel

- and Fibrinolytic Therapy was applied within 15 minutes after the patient was admitted:

Single Patient - DEMO - (Ac 2016/11) - 4.0.4.22471 - admin

Patient: DHE8796 - Patient 37020

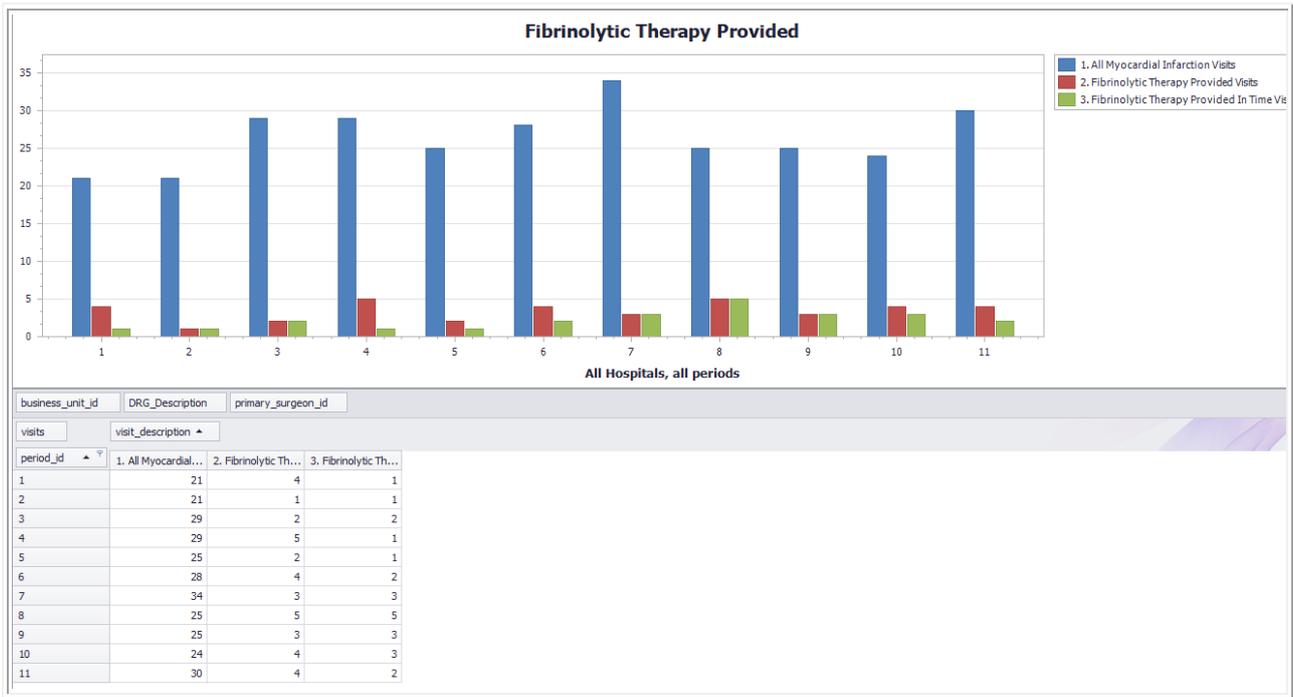
Visits | Episode of Care | Patient Demographic | Visit Details | Measures | OR Details | Professionals | ICD | Procedure | Contracts | Day Of Stay

Visit Code: 197009 | Product Group: []

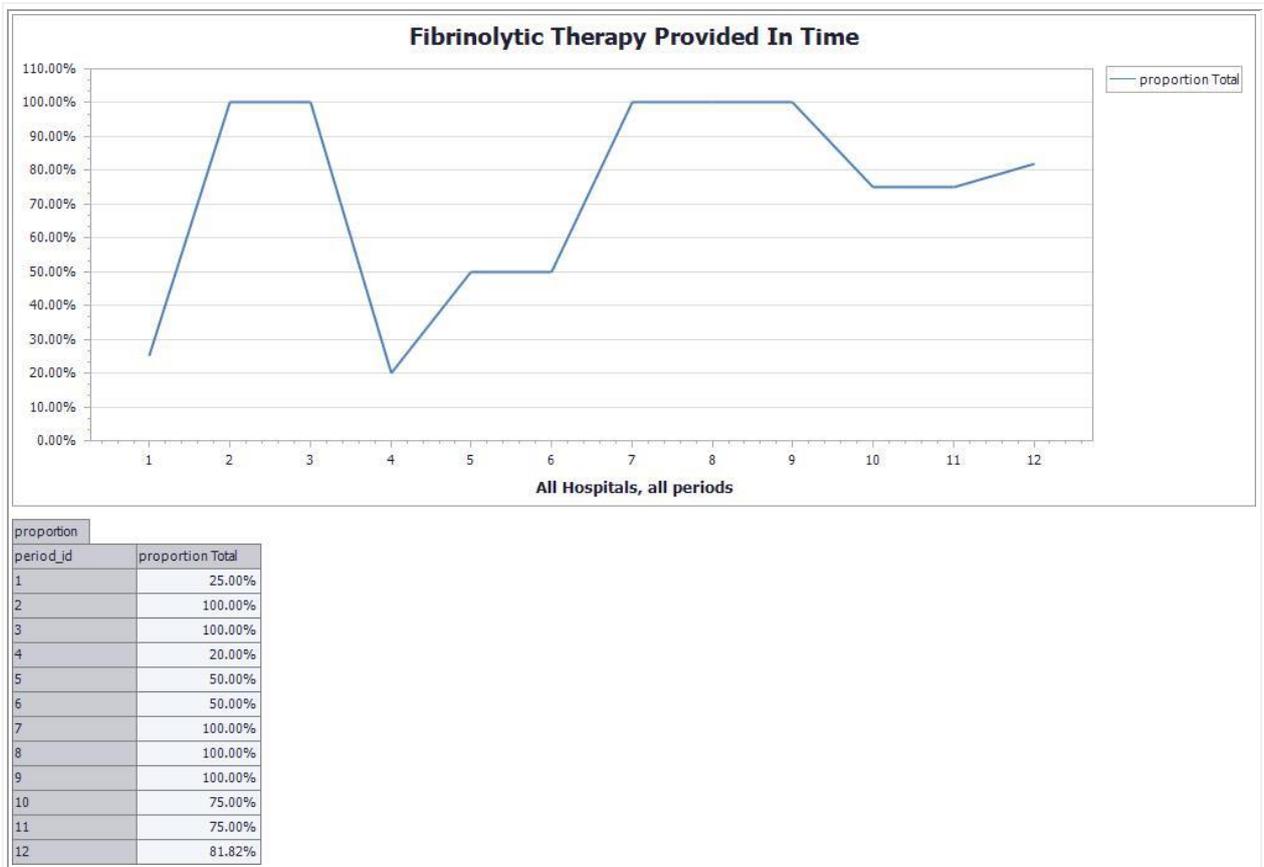
Product Group	Cost Rate	Product	Service Cost Centre	Service Date	Period	Vers	DOA	Line	Qu	Adjus	Total Cost	Revenue	Di	Prof	
Visit Code : 197009 (10 items)	\$45,926.49								123...	\$0.00	\$17,811.87	\$25,050.62	\$-64.	\$7.8	
Product Group : 3rd Party (6 items)	\$30,528.96								2.00..	\$0.00	\$10,176.32	\$15,436.64	\$0.00	\$5.2	
Product Group : Accommodation (11 items)	\$23.85								9.00..	\$0.00	\$71.54	\$2,351.46	\$0.00	\$2.2	
Product Group : Doctor Fee (3 items)	\$176.96								3.00..	\$0.00	\$176.96	\$255.00	\$0.00	\$78.	
Product Group : Drugs (1 item)	\$1.00	Fibrinolytic Therapy	South-General	2016-11-24 06:44:24	2016/11	Ac		1,918	BNI_E	1.00..	\$0.00	\$1.00	\$1.15	\$0.00	\$0.
Product Group : EQUIP (3 items)	\$1,718.00								1.00..	\$0.00	\$1,718.00	\$2,288.67	\$0.00	\$57.	
Product Group : Lab (2 items)	\$50.55								2.00..	\$0.00	\$50.55	\$469.23	\$0.00	\$41.	
Product Group : Operating Room (9 items)	\$181.33								89.5..	\$0.00	\$1,106.34	\$949.43	\$0.00	\$-15.	
Product Group : Patient services (3 items)	\$121.51								3.00..	\$0.00	\$121.51	\$0.00	\$0.00	\$-12.	
Patient services	\$9.83	AcquirePatient	PatientServices	2016-11-24 06:30:00	2016/11	Ac		1,918	Cost	1.00..	\$0.00	\$9.83	\$0.00	\$0.00	-\$9.
Patient services	\$47.09	Customer Services	Patient Services	2016-11-24 06:30:00	2016/11	Ac		1,918	Cost	1.00..	\$0.00	\$47.09	\$0.00	\$0.00	-\$47.
Patient services	\$64.59	Admissions	ADU	2016-11-24 06:30:00	2016/11	Ac		1,918	Cost	1.00..	\$0.00	\$64.59	\$0.00	\$0.00	-\$64.
Product Group : Recharge (3 items)	\$0.00								1.00..	\$0.00	\$0.00	\$0.00	\$0.00	\$-64.	
Product Group : Supplies (19 items)	\$13,124.33								12.0..	\$0.00	\$4,389.65	\$3,299.04	\$0.00	\$-1.0	

To see the values of the metrics discussed above over time for the entire hospital group, see the below:

(In the graph below, "In Time" means that the Fibrinolytic Therapy was applied within 30 minutes after the patient was admitted)



- Note that Fibrinolytic Therapy was applied in some cases, but was never applied in many others.
 - Note that, where Fibrinolytic Therapy was applied, it was often applied within 30 minutes. The following shows the proportion more clearly - the line shows the percentage of cases where, when Fibrinolytic Therapy was applied, this was done within 30 minutes of hospital admission:

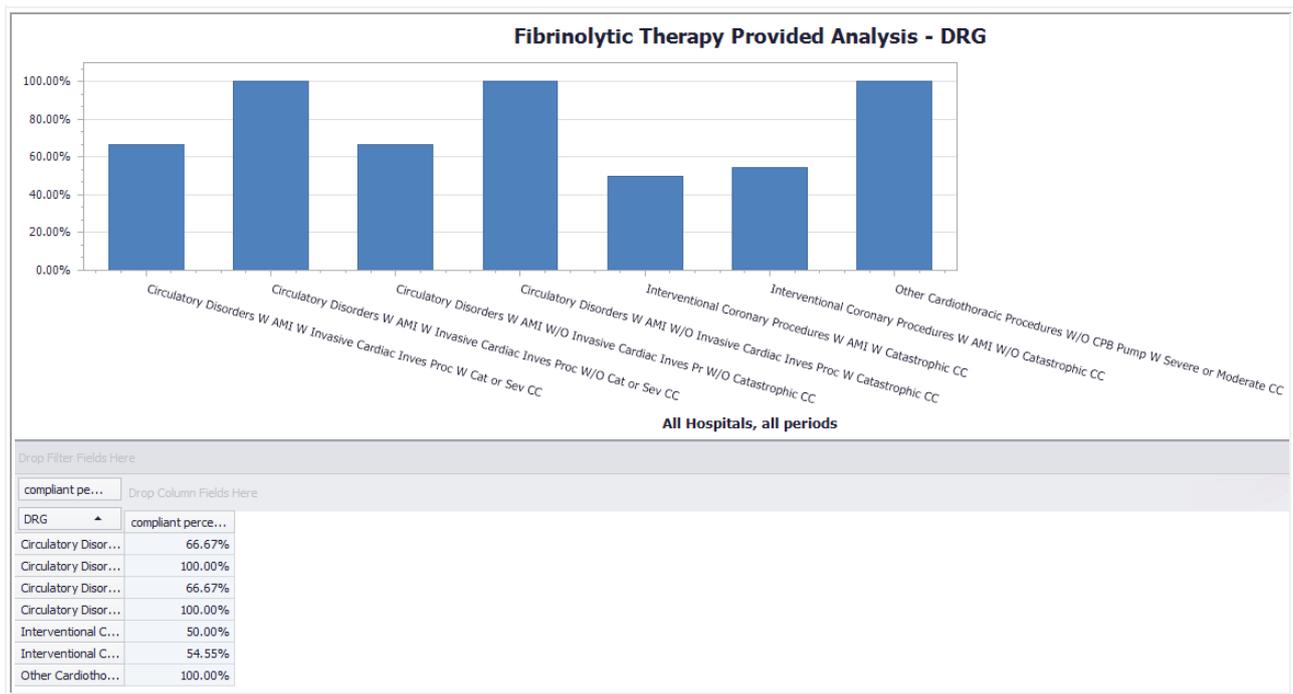


- This shows that Fibrinolytic Therapy was applied at a rate of between 70% and 100% for the last few months.

If required, Intellimax provides functionality that allows one to further investigate the implementation of quality metrics.

1. By DRG

The example below shows the percentage of cases for which Fibrinolytic Therapy was applied within the first 30 minutes, for all periods, by DRG:



- Note that, for example, for " Interventional Coronary Procedures W AMI W/O Catastrophic CC ", less than 60% of the cases received Fibrinolytic Therapy within 30 minutes of admission.
- Other cases, like "Circulatory Disorders W AMI W Invasive Cardiac Inves Proc W/O Cat or Sev CC", consistently received Fibrinolytic Therapy within 30 minutes of admission.

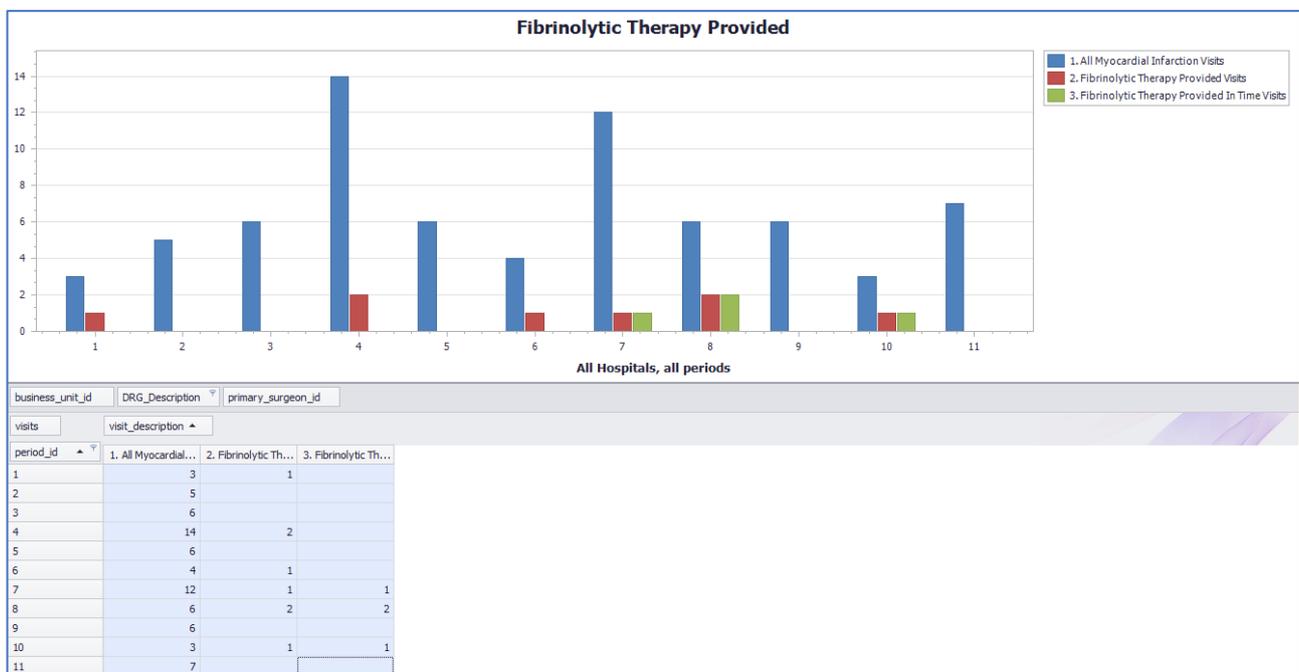
2. By Drilling into the data

Intellimax provides functionality to focus on specific data selections – this may include specific cases, doctors or periods. For example, a user could restrict the cases to be viewed by choosing only the required cases:

business_unit_id	DRG_Description	primary_surgeon_id
visits	visit_description	
period_id	All Myocardial In...	
1	3	
2	5	
3	6	
4	14	
5	6	
6	4	
7	12	
8	6	
9	6	
10	3	
11	7	

(Show All)
 Circulatory Disorders W AMI W Invasive Cardiac Inves Proc W Cat or Sev CC
 Circulatory Disorders W AMI W Invasive Cardiac Inves Proc W/O Cat or Sev CC
 Circulatory Disorders W AMI W/O Invasive Cardiac Inves Pr W/O Catastrophic CC
 Circulatory Disorders W AMI W/O Invasive Cardiac Inves Proc W Catastrophic CC
 Interventional Coronary Procedures W AMI W Catastrophic CC
 Interventional Coronary Procedures W AMI W/O Catastrophic CC
 Other Cardiothoracic Procedures W/O CPB Pump W Severe or Moderate CC

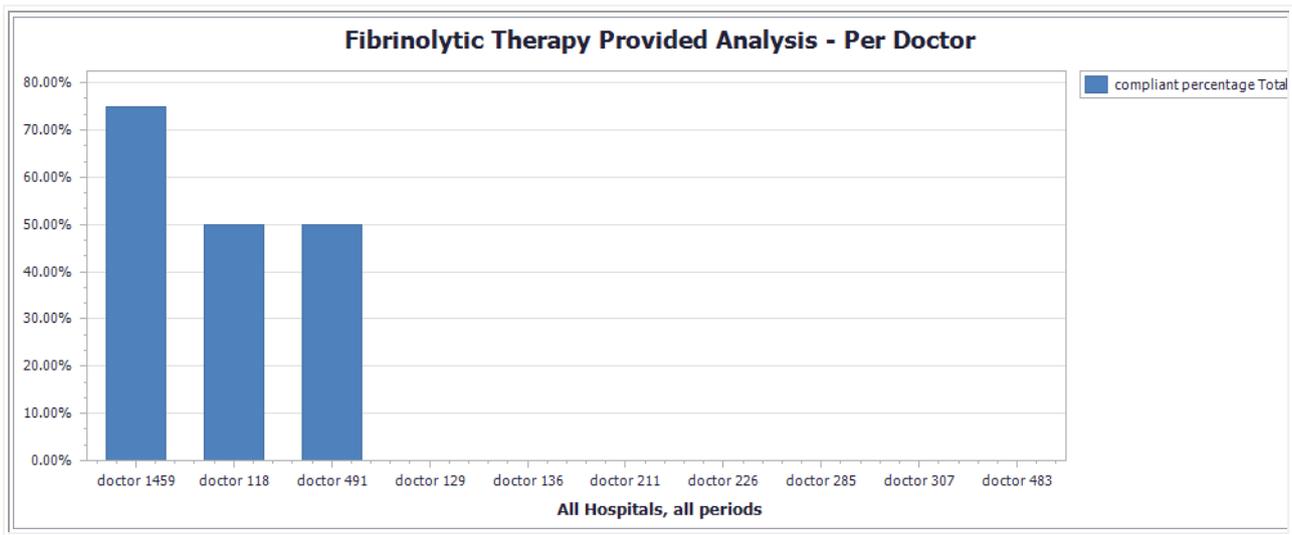
Doing so will update the cases in the reports:



- In the example above, only “Interventional Coronary Procedures With AMI W/O Catastrophic CC” cases are reported on.

3. By Doctor

A user could also view the data by doctor: the following shows the percentage of cases where Fibrinolytic Therapy was not applied within 30 minutes (these cases would be considered non-compliant with the policy of providing therapy in a timely manner), per doctor:



- Note that three doctors complied but were inconsistent, but a few doctors never seemed to be complying with the policy at all.

- Management could follow up with these doctors regarding compliance with the Fibrinolytic Therapy policy.

Conclusion

Fibrinolytic Therapy is being applied within 30 minutes on many occasions, but it looks as if there were certain doctors who are not complying with the policy at all – this explains the inconsistencies we saw in the overall compliance with the policy.