

Analysis of case-mix changes in hospital emergency care 2010-2015 in Stockholm County Council

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Classification and reimbursement models

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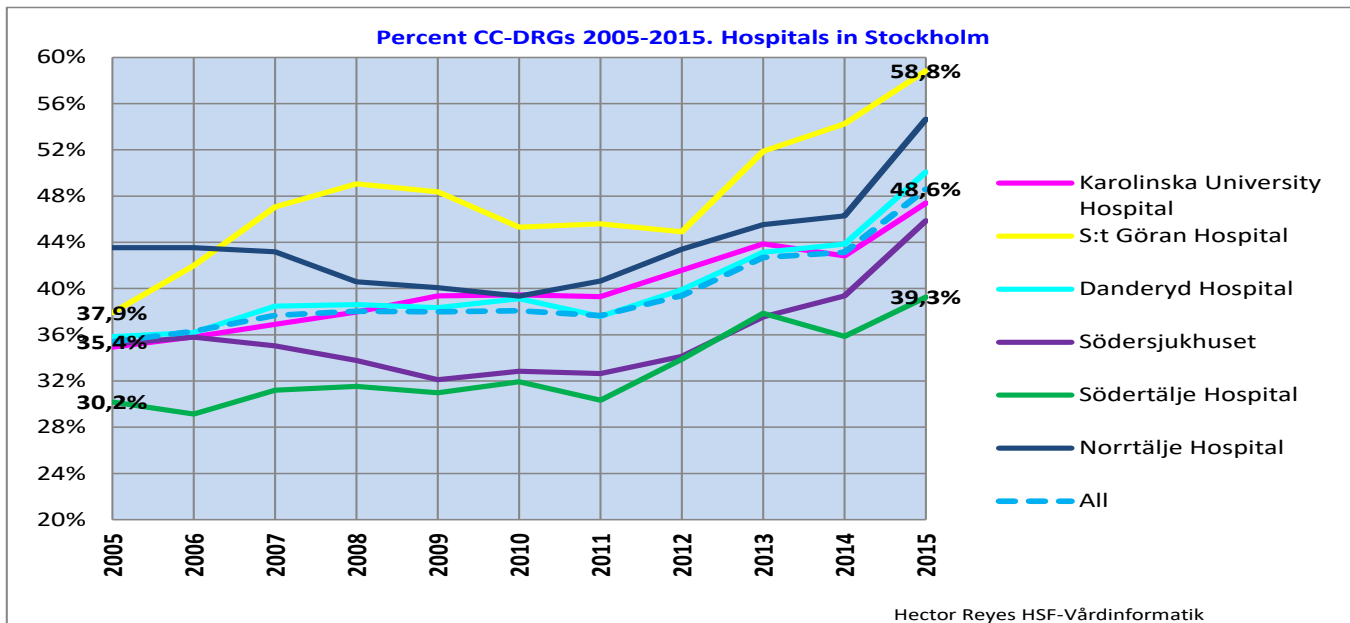
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Variation in number of complications and comorbidities in Diagnosis-related groups in acute care hospitals in Stockholm County Council during the period 2005 – 2015



Major results 2016



Mean costs 2016

CC DRGs

	Year 2005	Year 2015	Diff 2015/2005	
Diagnosis/case	2,5	3,4	36%	
Number procedures/case	1,2	1,7	43%	
Percent CC DRGs	35%	49%	37%	
Percent age > 69	31%	37%	19%	
Mean LOS	3,54	3,52	-1%	
Mean cost*	49 687	49 920	0%	
Casemix-index	0,923	0,956	4%	

*Mean cost 2006 och 2014, adjusted to 2014 level



Discussion 2016

- Coding practice?
- DRG system?
- Cost per patients?



Material and Method

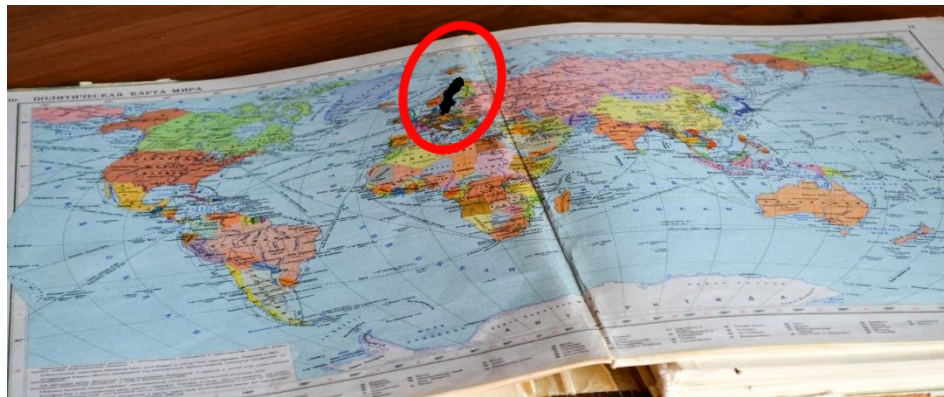
- Six hospitals in Stockholm
 - 1 University hospital
 - 5 Acute care hospitals
 - 3 Regional hospitals
 - 2 Local hospitals

Material and Method

- Six hospitals in Stockholm
 - 1 University hospital
 - 5 Acute care hospitals
 - 3 Regional hospitals
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- Population

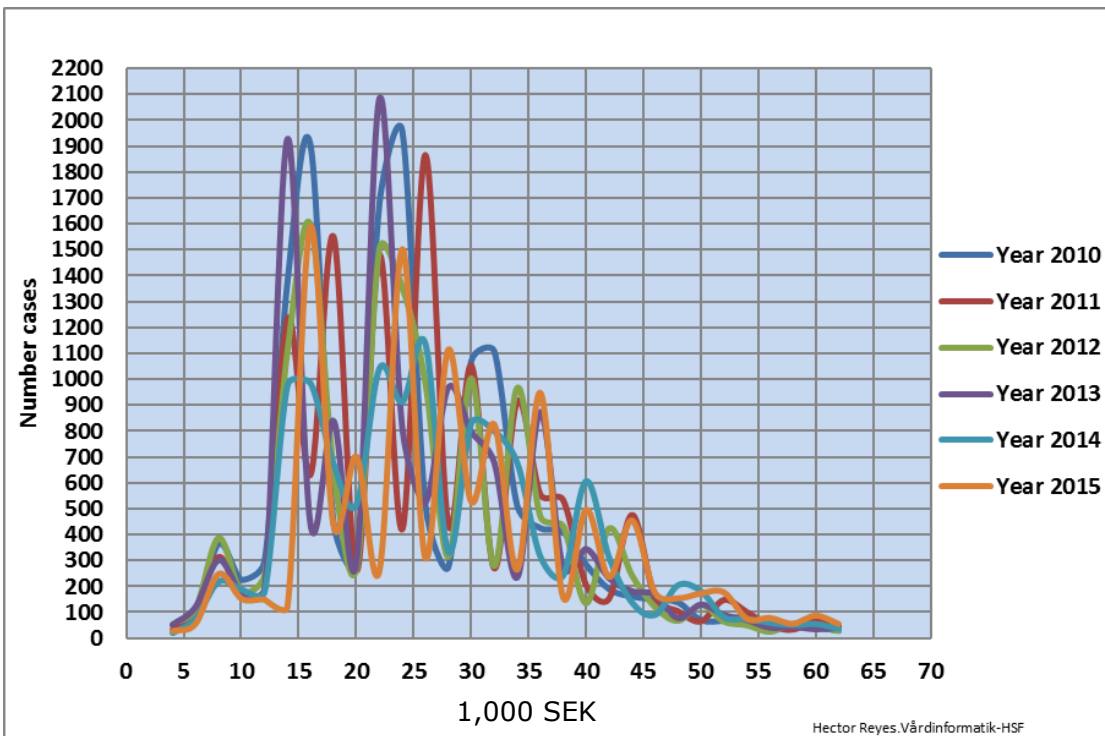
- 10 081 396
- 2 287 950



DRG in Sweden

- ICD 10-SE
- NordDRG (secondary classification)
- 775 DRG
 - 3 severity levels
 - Major complications and/or comorbidities (MCC)
 - With complications and/or comorbidities (CC)
 - Without CC
- Cost per patient
 - Since 2003
 - About 45 % unique patient cost

Vaginal delivery



POSE	Variation	
	coefficient	Skewness
Year 2010	42	0,8
Year 2011	41	0,7
Year 2012	41	0,7
Year 2013	42	0,7
Year 2014	41	0,6
Year 2015	40	0,5

Yearly update DRG

- DRG-groups
- Cost per patient
- Weight list

Yearly update

- DRG-groups
 - DRG 2015
- Cost per patient
 - Prize index / 2015
- Weight list
 - 2010-2015

Objective

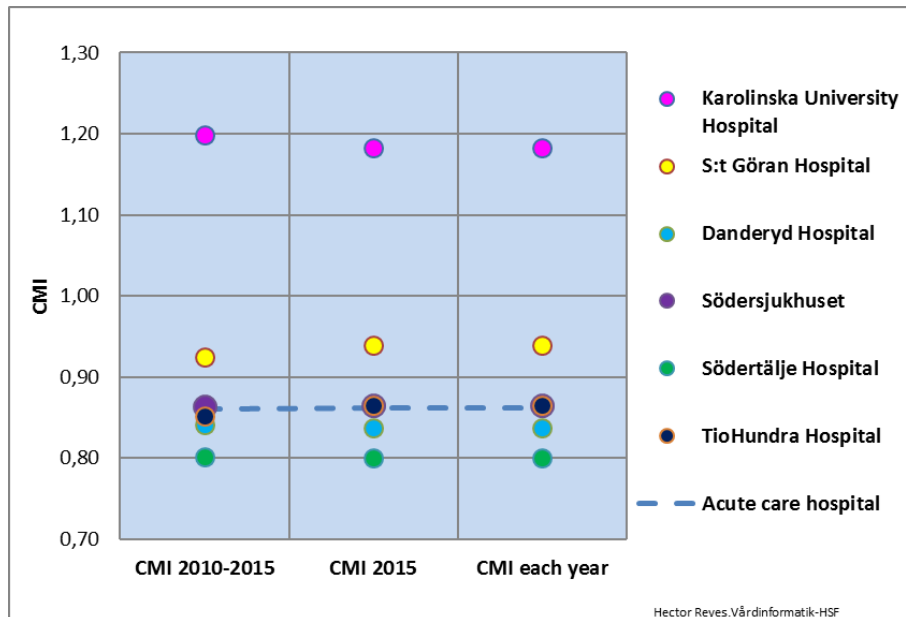
- Analysis of case-mix
 - Trends during 2010-2015
 - University hospital vs regional hospitals
 - LOS 0-1 day
- Uniform data – new method

Material and Method

- Kruskal-Wallis test
- High frequent DRG:s
- Coefficient of variation (CV)
- Skewness (S)

Results

- Case-mix index, different weight lists



Results

- Reimbursement
- Weight list 2015 and 2010-2015

	CPP (miljon SEK)	WL 2010-2015	WL 2015	Diff WL 2010- 2015 (%)	Diff WL 2015 (%)
Karolinska University	33 130	30 533	30 150	-7,8%	-9,0%
S:t Görän hospital	4 377	4 834	4 911	10,5%	12,2%
Danderyd hospital	9 099	9 884	9 840	8,6%	8,1%
Södersjukhuset	12 384	13 381	13 384	8,1%	8,1%
Södertälje hospital	2 208	2 340	2 335	6,0%	5,8%
TioHundra hospital	863	1 028	1 044	19,1%	20,9%
Total	62 060	62 001	61 664	-0,1%	-0,6%

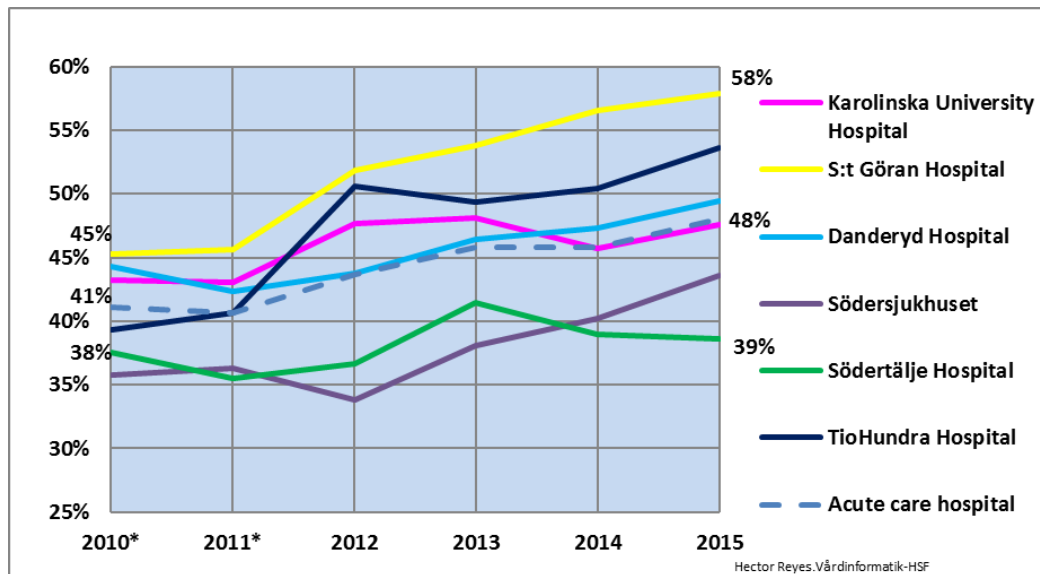
Results

- Trends in acute hospital care

	Year 2010	Year 2015	Diff 2015/2010
Diagnoses/stay	2,8	3,4	21%
Procedures/stay	1,3	1,8	32%
Percent CC	41%	48%	17%
Age > 64 år	41%	43%	6%
Mean costs	56 545	54 170	-4%
Mean LOS	3,6	3,5	-2%
LOS 0-1	38%	40%	4%
CMI-SLL-2010_2015*	0,998	1,011	1%

Results

- Percent CC DRG 2010-2015



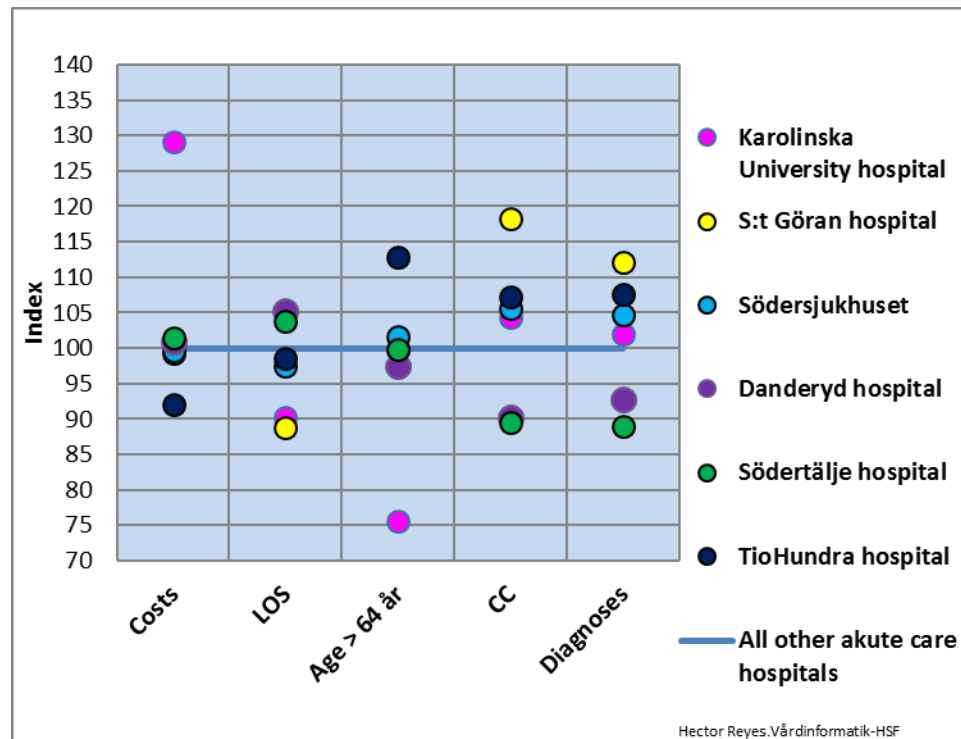
Results

DRG index

DRG 2010-2015

adjusted for

case-mix



Results

- Significant differences cost between University hospital and Acute Care hospitals

Mean cost after trimming	Number DRG > 200 cases	Number DRG significant	Percent significant
Karolinska University ↔ All other acute care hospitals	584	575	98%

Kruskal-Wallis test

Significant differences in costs between LOS 0-1 and LOS > 1

	DRG > 200 cases	Significant difference	Percent significant
LOS 0 ↔ LOS > 1	584	577	99%
LOS 1 ↔ LOS > 1	584	578	99%
LOS 0 ↔ LOS 1	556	457	82%

Kruskal-Wallis test

Conclusion

- Weight list 2010-2016 corresponds best to reimbursement and costs
 - Distribution of cost in more frequent DRGs varies between years
- Same results as earlier studies – case-mix changes
 - More elderly patients
 - CC DRG increase
 - Costs constant
 - Costs short LOS (0-1) differs from LOS >1
 - Systematic differences in costs between University hospital and other acute care hospitals
- Case-mix changes? Coding practice?

Thank you!

“The pursuit of truth and beauty is a sphere of activity in which we are permitted to remain children all our lives”

— Albert Einstein

