Nordic Casemix Centre - Case #191
Case 2010-MDC18-02 DRG-logic for sepsis

2014-01-16 12:28 - Anonymous

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Description

Last updated: 2011-04-20
Status: CLOSITEM - Closed item
Initiated: 2010-02-09
By: Olafr Steinum/CPK, Sweden
Expert Network 2010-03-13 - Postpone recommended
Board 2010-04-09 - Recommendation accepted
Expert Network 2011-03-17 - Change recommended
Board 2011-04-04 - Recommendation accepted

BACKGROUND

CPK ID 341

Problem

From 2011 there are new guidelines for the coding of sepsis:

1. Sepsis is now defined as an infection that causes SIRS. This definition differs from the previous.
2. Sepsis with hypotension and organ dysfunction is called ”severe sepsis” and is in accordance with the previous terms ”sepsis” or ”septicaemia”.
3. Severe sepsis shall be coded with R65.1 and the more severe condition Septic shock shall be coded with R57.2.
4. The underlying infectious disease (the cause for sepsis) shall be coded as the principal diagnosis and the degree of sepsis shall be coded with R65.1 or R57.2 as a secondary diagnosis.
5. The special sepsis codes in chapter I (under A and B) shall be used as principal diagnosis only when the underlying infectious disease has no obvious organ origin.
6. The use of A41.9 as a marker for septic shock will end. Instead R57.2 is used, and registered as secondary diagnosis.

The new guidelines make it necessary to revise the DRG logic for sepsis. Perhaps the best solution is to have Major CC groups for septic shock. An intermediate solution could be that:

- R65.1 as secondary diagnosis, via a ”preMDC-rule” is allocated to a DRG in MDC18 with the title Severe sepsis,
- R57.2 as secondary diagnosis, via a ”preMDC-rule” is allocated to a DRG in MDC18 with the title Septic shock

and that these groups are favoured when the DRG weights are settled so that a correct coding is encouraged.

The text has been shortened and translated by MF at CPK

Analysis

The proposals give rise to many questions:

1. What is an ”underlying infectious disease”? The possible diagnoses codes should be defined and given a PDGPRO value so that proper grouping rules can be constructed (unless genuine preMDC logic is desired). At present there are 411 diagnosis codes belonging to MDC 18 (see the table **Diag_MDC18** in Sepsis_Appendix.xls). Is there a need for more codes? What about for example K57.0 (Divertikel i tunntarmen med perforation och abscess), N15.1 (Renal och perirenal abscess) and similar?
2. What is meant with “preMDC rule in MDC18”? Is it genuine preMDC logic, i.e. that any ICD10 code is accepted as a primary diagnosis or shall the primary diagnosis demand be defined (see above)? The profession (and then not only specialists in infectious diseases) must consider what is most important to describe in DRG terms. With genuine preMDC logic, for example, an arthroplasty that becomes infected (and the patient gets sepsis) can end up in a sepsis DRG. Is that desired? Or shall such a case be grouped to a DRG for complicated arthroplasty?
3. In the present logic there are 31 diagnosis codes (see **18M01** in Sepsis_Appendix.xls) that are grouped to existing sepsis-DRGs (see **Drglogic** in Sepsis_Appendix.xls). Shall all of these 31 codes also in the future lead to sepsis-DRGs if they are registered as principal diagnosis? At least one of them can be questioned, namely R65.0 (Systemiskt inflammatoriskt svarssyndrom [SIRS] av infektiöst ursprung utan organsvikt).
4. Two of the 31 codes, R57.2 (Septisk chock) and R65.1 (Systemiskt inflammatoriskt svarssyndrom [SIRS] av infektiöst ursprung med organsvikt) are suggested to lead to sepsis-DRGs even when they are registered as secondary diagnosis. What about the other 29 codes? How shall they be handled if they are registered as secondary diagnosis? A48.3 (Toxic shock syndrome) or R57.1 (Hypovolemisk chock) as secondary diagnosis to an infectious disease is probably as serious as R57.2.
5. Besides the 31 codes with dgcat 18M01 there are another 32 diagnosis codes where the code text contains ”sepsis” or similar expressions. See the table **Sepsis by text** in Sepsis_Appendix.xls. How shall these be handled in the sepsis logic if they are registered as principal or secondary diagnosis?
6. There are two existing DRGs for sepsis, DRG 416 (Sepsis >17) and 417 (Sepsis <18). Does the proposal for new DRGs for ”Severe sepsis” resp. “Septic shock” mean that the existing DRGs shall be excluded?
7. What is the motive to have sepsis-DRG divided into ”Severe sepsis” resp. “Septic shock”? Severe sepsis in itself is probably very resource consuming. Can we expect that septic shock is so much more expensive that an split is motivated? And – is there really a need for two DRGs for sepsis (even though they formally fulfil the demands for a split)? Is there a systematic casemix difference between departments for infectious diseases so that some of them have more of the expensive cases or is there a random distribution?

Suggestion

CPK support a change in NordDRG 2011 so that R57.2 and R65.1, when registered as secondary diagnosis to any primary diagnosis in MDC 18, leads to existing DRGs for sepsis.
The possibility for new DRGs for sepsis in NordDRG 2012 has to be analysed further, with notice to the questions 1-7 above.

COMMENTS

Expert Network 2010-03-12

The meeting recommended postponing the proposal. Existing rules for DRG 416 and 417 should be kept. New rules for R57.2 eller R65.1 as secondary diagnose in combination with certain main diagnosis.
Olafr Steinum shall make that list of suitable main diagnosis.
Only Sweden has introduce a new coding practice so there will be a Swedish solution.

Mats Fernström, Ralph Dahlgren, Olafr Steinum, Martti Virtanen 2010-06-30

The problem of the new sepsis coding will be solved in the following way:

In principle the cases that are currently assigned to sepsis DRG’s (416&417) should be even in the future be assigned to the same DRG’s. However, since recommendations for basic coding will radically change, this is not possible in all cases. Therefore the DRG’s will be changed to 416N and 417N with the same names as currently.
In the new coding severe septic condition is indicated with codes R65.1 ‘Severe sepsis’ or R57.2 ‘Septic shock’. However these codes

may not be used as principal diagnosis. There is a number of codes that may indicate the primary condition which has resulted in the septic condition. Some of them are currently assigned to other DRG's like DRG 20 'Nervoussystem infection except viral meningitis '. Others are such that one would currently code principal diagnosis from dg-category 18M01 'Septicaemia'.

The model will be that cases with principal diagnosis indicating possible sepsis with secondary diagnosis R57.2 or R65.1 will be assigned to sepsis DRG by a preMDC rule. The use of R57.2 and R65.1 is allowed with principal diagnosis indicating severe conditions. These cases will be assigned as currently. Cases without R57.2 or R65.1 will be assigned to other DRG's. Cases with R57.2 or R65.1 without code for condition potentially causing severe sepsis will be assigned to DRG 470. R57.2 and R65.1 will be complicating diagnosis without exceptions.
It is possible to allow the use of current model by not removing the current rules for DRG 416&417. The exact description is in the 'Technical changes' below.

Martti Virtanen, 2010-08-26

In principal all codes in the group R57 and in the new group R65 should after this modification of ICD-10 not be used as main diagnosis. However, R57 is and old group and the others codes than R57.2 have been used as main diagnosis. Therefore after consultation with Olafr Steinum the old properties have not been removed. R65 group are new codes that have not been used previously. Therefore wrong usage should not be encouraged. All codes in the group R65 will therefore belong to diagnosis category 99M00 and cases with R65 main diagnosis will be assigned to DRG 470. Otherwise the codes will have same properties (when applicable) as corresponding R57 codes now have.

CHANGES

Technical changes

New principal diagnosis property:

- 18P03 'Principal dx potentially causing severe sepsis'

Two new diagnosis properties:

- 18X10 'Severe septic condition'
- 18X11 'Condition potentially causing severe sepsis'

Dx R65.1 and R57.2 will be assigned to diagnosis category 99M00 'Code not acceptable as principal diagnosis'. They will get diagnosis property 18X10 and complcat 00C00.

All other codes in R65-group will be assigned to diagnosisf category 99M00. They will not have diagnosis property 18X10. R65.0 will have properties 15X36 'Neonatal infection or metab. problem ' and 18X02 'Major HIV related condition'. R65.2, R65.3 and R65.9 will have properties 05X02 'Cardiovascular complication', 05X03 'Other circulatory system complex diagnosis' and 15X98 'Other significant problem of neonate'. R65.0 will belong to complication category 18C02 'Septicemia' and R65.2, R65.3 and R65.9 to 23C01 'Shock'.

Codes or 3-character code groups that shall have pdgprop 18P03

A00	A44	I702A	K630	M01	N72
A01	A45	J09	K631	M462	N73
A02	A46	J10	K65	M463	N74
A03	A47	J11	K67	M464	N75
A04	A48	J12	K750	M465	N76
A05	A542	J13	K770	M600	N77
A06	A548	J14	K800	M650	N762
A07	B007	J15	K801	M680	N980
A08	B25	J16	K803	M710	R02
A09	B377	J17	K804	M711	T793
A20	B387	J18	K81	M726	T802
A21	B393	J051	K830	M86	T814
A22	B407	J69	K85	N10	T826
A23	B417	J85	L00	N11	T827
A24	B427	J86	L01	N12	T835
A25	B447	J954	L02	N136	T836
A26	B457	K04	L03	N308	T845
A27	B464	K052	L04	N390	T846
A28	B582	K102	L05	N412	T847
A327	B59	K113	L08	N498	T857
A38	H050	K122	L88	N499	T874
A39	H440	K20	L89	N61	T880
A40	H660	K35	L97	N70	
A41	H700	K57	M00	N71	

Codes and code groups that shall have diagnosis property 18X11

A00-A99	H603	K261	K414	N322	O050
B00-B64	H66	K262	K421	N410	O055
B99	H70	K265	K431	N412	O060
G00	I00	K266	K441	N820	O065
G01	I01	K271	K451	N822	O080
G02	I30	K272	K461	N823	O290
G03	I33	K275	K55	N824	O890
G04	I40	K276	K56	N825	O91
G05	I702	K281	K593	O85	O98
G06	J01	K282	K823	O86	P23
G07	J02	K285	K871*	O91	P35
G08	J03	K286	M49*	O23	P36
H000	K251	K316	N300	O030	P37
H043	K252	K401	N308	O035	P38
H601	K255	K404	N309	O040	P39
H602	K256	K411	N321	O045	

In the DRGlogic table 3 new rules are added:

- After current rule 000D004 a copy of that rule. Pdgprop value is removed and Dgrpop1 is given value 18X10 and Dgprop2 value

-18X11.

- After current rule 400D3004 a copy of current rule 418D021009 (DRG 416). DRG is changed to 416N. Dgcat1 value is removed. Pdgprop is given value 18P03, Dgprop1 value 18X10 and Agelim >6574
- After the previous rule a copy of current rule 418D022009 (DRG 417). DRG is changed to 417N. Dgcat1 value is removed. Pdgprop is given value 18P03 and Dgprop1 value 18X10.

In the Swedish version ther rules 418D021009 and 418D022009 are removed.

In the Drgnames table DRG's 416N and 417N are added with the same names as current DRG's 416 and 417.

Diagnosis R57.1 'Hypovolaemic shock' and R57.8 'Other shock ' are moved from diagnosis category 18M01 to 05M03 'Heart failure and shock'.

DRG changes

Cases with R57.2 and R65.1 if correctly coded are assigned to DRG 416N or 417N. If the principal diagnosis is currently assigned to other severe infection DRG's in other MDC's than 18 they will not change even if R57.2 or R65.1 would be used. If R57.2 or R65.1 are used without any potentially sepsis causing condition diagnosis, they are assigned to DRG 470. If R57.2 or any code from the R65 group is used as principal diagnosis the cases will be assigned to DRG 470.

These changes will not affect other countries, since dx R57.2 and R65.1 are not used in those countries. The old assignment will be valid. Norwegian and Icelandic national code sets include the new codes. Therefore these national versions of NordDRG will include the new rules. If the new codes have been planned to be used against the WHO recommendation as principal diagnosis, some modification is necessary – either in coding or in the NordDRG.

R57.1 and R57.8 that are not really sepsis codes and they are assigned as principal diagnosis to shock (MDC 5).

Introduction

NordDRG 2011

COMMENTS

Mats Fernström & Ralph Dahlgren, NPK 2011-03-04

The new DRG-logic for sepsis was introduced in the Swedish version of NordDRG for 2011. We then noticed that a considerable number of correctly coded cases were grouped to DRG 470 according to the validation rule mentioned above ("If R57.2 or R65.1 are used without any potentially sepsis causing condition diagnosis, they are assigned to DRG 470"). The problem was that the list of codes for "potentially sepsis causing condition diagnosis" was not complete. Together with Olafr Steinum we realized that it is a very time consuming task to complete the list and there is still a risk that some conditions that can lead to sepsis will be missing (theoretically a huge number of conditions can lead to sepsis). Thus, the validation rule leading to DRG 470 was deleted in the latest Swedish version of NordDRG.

New problems:

1. Specialists in infectious diseases point out that it is not logical that R65.0 (Systemiskt inflammatoriskt svarssyndrom [SIRS] av infektiöst ursprung utan organsvikt) has got CC property. SIRS means tachycardia and fever and these symptoms are normal in hospital cases with infectious diseases. Thus it is possible and correct to add the code R65.0 to all infectious cases and then all of them will be grouped to DRGs for complicated cases. In the end there will be no cases in the DRGs for uncomplicated cases. **Proposal**: The CC property must be withdrawn from R65.0.
2. In connection with the problem above we noticed that R65.2 (Systemiskt inflammatoriskt svarssyndrom [SIRS] av icke-infektiöst ursprung utan organsvikt) also has got CC property (23C01 Shock) although tachycardia and fever are quite normal symptoms after major surgery. **Proposal**: The CC property must be withdrawn also from R65.2.

3. There is also a hierarchy problem with the new rules for DRG 416N and 417N in the Swedish NordDRG logic. It has been reported that heavy weight cases, like operations with tracheotomy that previously were grouped to DRG 483 (Trakeostomi ej pga öron-, näs- och halssjukdom), now are grouped to DRG 416N and 417N with much lesser weights. It is almost impossible to decide the right ORD values for the new rules to DRG 416N and 417N because the coding praxis is new and we don't know for sure the costs for these patients. The Swedish weights for DRG 416N and 417N were calculated on the sepsis cases according to the previous grouping logic and therefore we suggest that the new rules are placed like the old rules while we are waiting for future cost data.
Proposal: The ORD values for DRG 416N (400D300220) and 417N (400D300221) are changed to 418D021 and 418D022, respectively.

COMMENTS

Expert Network 2011-03-17

The meeting recommended acceptance of the proposal that CC-property should be withdrawn from R65.0 and R 65.2.
The hierarchy will be changed in this way:

- Tracheotomy
- Sepsis
- Rehabilitation

Mats Fernström, NPK 2011-04-07

In connection with the implementation of the hierarchy change in the Swedish Drglogic table we noticed that the rules for DRG 416N and 417N had been placed before the rules for DRG 191A (pancreas transplant) and DRG 302 (kidney transplant) in NordDRG 2011. Without knowing the costs for the new groups 416N and 417N, we think it is more important to describe the transplantation cases, so we decided to put also the rules for DRG 191A and 302 before the rules for 416N and 417N. Thus, the hierarchy order in the Swedish version will be:

- Transplantations
- Tracheotomies
- Sepsis
- Rehabilitation

CHANGES

Technical change 2011-03-28

R65.0 and R65.2 will be removed from the complication category.
Current rules 400D4002 DRG 482X, 400D4003 DRG 482X and 400D4011 DRG 483X are moved before current rule 400D3005 (common version) for DRG 416N.

DRG change 2011-03-28

Cases with tracheotomy are assigned to intensive care groups (with tracheotomy) instead of sepsis and rehabilitation groups.

Introduction

NordDRG 2012

Files

Sepsis_ Appendix.xls	146 KB	2014-01-16	Anonymous
2010-MDC18-02_1.jpg	39.3 KB	2014-01-16	Anonymous