BMC2

Elective PCI Report Dictionary (New)

A guide that provides line item detail for BMC2 PCI 2022 Q2 facility and physician level reports.

Matching NCDR & BMC2 Records

The following fields are used to match BMC2 records to NCDR records:

- NCDR Client ID
- NCDR Patient or Patient Other ID Number
- Procedure Date & Time (within 24 hours will be considered matched)
- Discharge Date

Report Column Explanation

Example:

	Collaborative			Hospital			Benchmark
	n	Denom	Pct.	n	Denom	Pct.	
Primary Access							
Femoral	416	1104	37.7%	52	184	28.3%	49.0%
Radial	686	1104	62.1%	130	184	70.7%	50.8%
Secondary Access Site	83	1107	7.5%	18	185	9.7%	10.7%
Mechanical Support	28	83	3.4%	8	18	44.4%	28.6%

Collaborative: data in these columns pertain to all of the sites without open heart surgery capability in the State of Michigan.

Hospital: data in these columns pertain to an individual facility.

Benchmark: the values in these columns are adjusted values which are based on the larger "regular"collaborative's numbers (sites with on site open heart capabilities) performance. These values provide a meaningful comparison group by using weighted incidences based on "case types" (like cases grouped/sorted on presentation and diagnosis).

Case Mix

Discharges

Number of discharges undergoing one or more PCI procedures that were discharged during the reporting period.

Total Procedures

Number of percutaneous coronary intervention procedures performed in which discharge date is during the reporting period.

Acute Coronary Syndrome

Numerator: Number of procedures in which the PCI indication is documented as any of these options: ST-Elevation MI (STEMI) or equivalent, NSTE-ACS (NCDR#7825).

Denominator: Total Procedures

When including timeframes Q1 2018 and prior:
Numerator: Number of procedure in which the PCI indication is documented as any of these options: STEMI or equivalent, PCI for high risk Non-STEMI or unstable angina (NCDR V 4.4 #7035)

Denominator: Total Procedures
**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

STEMI

Numerator: Number of procedures in which the PCI indication is documented as ST-Elevation MI (STEMI) or equivalent (NCDR#7825 any of the STEMI indications).

Denominator: Acute coronary syndrome.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which the PCI indication is documented as STEMI or equivalent (NCDR 4.4 #7035)

Denominator: Acute coronary syndrome.

NSTE-ACS

Numerator: Number of procedures in which the PCI indication is documented as NSTE-ACS (NCDR#7825).

Denominator: Acute coronary syndrome.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which the PCI indication is documented as "PCI for high risk Non-STEMI or unstable angina" (NCDR V 4.4 #7035)

Denominator: Acute coronary syndrome.

Low risk Acute Coronary Syndrome/USA

Numerator: Number of NSTE-ACS procedures in which BMC2 NSTE-ACS ="USA", BMC2 "Presented to cath lab="home", and Pre-Procedure Troponins (I or T)=not drawn (NCDR#6091 and 6096).

Denominator: NSTE-ACS.

When including timeframes Q1 2018 and prior:

Numerator: Procedures with: "Unstable Angina" selected for NCDRv 4.4 field #5000 (CAD Presentation), "not Drawn" selected for NCDR v 4.4 field#'s 7306 and 7311(Troponin I and Troponin T), and "other" selected for NCDR v 4.4 field # 3010 (Admit Source).

Denominator: Procedures with "Unstable Angina" selected for NCDR v 4.4 field#5000 (CAD Presentation).

(Procedures populating into this line item will also populate into the "Acute Coronary Syndrome" line item. This is a subset of the "Acute Coronary Syndrome" line item.)

Cardiovascular Instability at Start

Numerator: Number of procedures in which cardiovascular instability is documented at start of procedure (NCDR#7410)
Denominator: Total procedures.

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field.

Cardiogenic Shock at Start

Numerator: Number of procedures in which "Cardiogenic Shock" or "Refractory Cardiogenic Shock" are selected (NCDR #7415).

Denominator: Procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which Cardiogenic Shock at start of percutaneous coronary intervention is documented. (NCDR version 4.4 Sequence #7030)

Denominator: Total procedures.

When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values for cardiogenic shock (even though "cardiogenic shock" is available to select in both versions).

Cardiac Arrest within 24 hours

Numerator: Number of discharges with BMC2 "Cardiac Arrest w/in 24 hrs" documented.

Denominator: Discharges

When including timeframes Q1 2018 and prior:

Numerator: The number of discharges with BMC2 Cardiac Arrest Field marked as "yes".

Denominator: Total discharges.

Procedure

Primary Access-Arterial access site utilized for PCI

Femoral

Numerator: Number of procedures in which the femoral artery access site is documented (NCDR Sequence#7320)

Denominator: Total procedures performed.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in shich the femoral artery access site is documented (NCDR v 4.4 #5350)

Denominator: Total procedures performed.

Radial

Numerator: Number of procedures in which the radial artery access site is documented (NCDR Sequence#7320)

Denominator: Total procedures performed.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which the radial artery access site is documented (NCDR v 4.4 #5350)

Denominator: Total procedures performed.

Secondary Site

Numerator: Number of procedures in which there is a secondary arterial access site documented (BMC2 Secondary access site)

Denominator: Total procedures performed.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which there is a secondary arterial access site documented (BMC2 Secondary access site).

Denominator: Total procedures performed.

Adjunctive Measurements Obtained

Numerator: Number of procedures where adjunctive measures have been utilized (NCDR#7511 Native Vessel Adjunctive Measurements Obtained="Yes" **and/or** NCDR#7531 Graft Vessel Adjunctive Measurements Obtained="Yes")

Denminator: Total procedures

*This would include any adjunctive measurements obtained to diagnostically assess any lesion with angiographic stenosis of >=50%, not necessarily the same lesion PCI was performed.

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field.

FFR,iFR

Numerator: Number of procedures with FFR, iFR measurements obtained. (NCDR#7511 and/or #7531="Yes", and #7512/7532 "FFR Ratio" and/or #7513/7533 "iFR Ratio" have a value entered)

Denominator: Total procedures

These measurement would include those utilized to diagnostically assess any lesion with angiographic stenosis of >=50%, not necessarily the same lesion PCI was performed.

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field.

IVUS, OCT

Numerator: Number of procedures with IVUS and/or OCT measurements obtained. (NCDR#7511 Native Vessel Adjunctive Measurements Obtained="Yes" **and/or** NCDR#7531 Graft Vessel Adjunctive Measurements Obtained="Yes" **and** #7514/7534 "IVUS MLA" and/or #7515/7535 "OCT MLA" have a value entered)

Denominator: Total procedures

*This would include any adjunctive measurements obtained to diagnostically assess *any lesion* with angiographic stenosis of >=50%, not necessarily the same lesion PCI was performed.

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field.

Multi-Vessel PCI During Same Session

Numerator: The number of procedures that have multiple vessels intervened upon during the same cath lab visit (sesion) as the diagnostic procedure. NCDR #7000, 7005, 7045,and 7050 are utilized to determine what procedures are performed during the same cath lab visit .

Any combination of the following vessels (NCDR Field# 8001), with at least one segment involved, qualifies as a multi-vessel procedure:

- RCA= Segments 1-10
- Left Main = Segment 11a, 11b, 11c
- LAD= Segments 12-17 and 29 &29a
- Circumflex= Segments 18-27
- Ramus= Segments 28 & 28a

For example, one segment in RCA and two segments in Circumflex meets this defintion, as does three in the LAD and one Ramus, one LAD, one RCA and one Circumflex. However, two segments in any given vessel does not meet this definition.

Denominator: Total procedures.

When including timeframes Q1 2018 and prior:

Numerator: The number of procedures that have multiple vessels intervened upon during the same cath lab visit (sesion) as the diagnostic procedure (NCDR v 4.4 #5305="yes" and NCDR v 4.4 #5310=yes)

Any combination of the following vessels (NCDR v 4.4 # 7105), with at least one segment involved, qualifies as a multi-vessel procedure:

- RCA= Segments 1-10
- Left Main = Segment 11
- LAD= Segments 12-17 and 29 &29a
- Circumflex= Segments 18-27
- Ramus= Segments 28 & 28a

For example, one segment in RCA and two segments in Circumflex meets this defintion, as does three in the LAD and one Ramus, one LAD, one RCA and one Circumflex. However, two segments in any given vessel does not meet this definition.

Denominator: Total procedures.

Ad hoc PCI

Numerator: Number of procedures where diagnostic coronary angiography (NCDR #7045="yes") **and** percutaneous coronary intervention (NCDR#7050="yes") are performed during the same procedure (NCDR #7000 procedure start date/time are the same).

Denominator: Total procedures.

When including timeframes Q1 2018 and prior:

Numerator: The number of procedures that have diagnositic coronary angiography (NCDR v 4.4 #5310= "yes") and PCI (NCDR v 4.4 #5305="yes") during the same cath lab visit (sesion).

Denominator: Total procedures.

Mechanical Ventricular Support

Numerator: Number of procedures where mechanical ventricular support has been utilized (NCDR#7420 "Ventricular Support"="Yes" **and** NCDR#7422 "Mechanical Support"="Yes")

Denminator: Total procedures

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field

Peak Intra-Procedure ACT Recorded

Numerator: Number of PCI procedures in which the Peak Activated Clotting Time (ACT) was recorded (BMC2 Procedure Information-Intraprocedure ACT="yes").

Denominator: Total number of PCI procedures which unfractionated heparin was administered (NCDR #7990)="Unfractionated Heparin" and #7995="yes"

Exclusion(s):

- Procedures with bivalirudin administered (NCDR #7990=Bivalirudin" and #7995="Yes")

When including timeframes Q1 2018 and prior:

Numerator: Number of PCI procedures in which the Peak Activated Clotting Time (ACT) was recorded (BMC2 Procedure Information-Intraprocedure ACT)
Denominator: Total number of PCI procedures which unfractionated heparin was administered (NCDR v 4.4 #9510 Procedure Medications Unfractionated Heparin (any)="yes")).

Exclusion(s):

- Procedures with bivalirudin administered (NCDR v. 4.4 #9510 Procedure Medications Bivalirudin="Yes")

Peak ACT >= 350 Heparin Only

Numerator: Number of procedures with peak intra procedure >=350 seconds (BMC2 Procedure Information/Intra-procedure ACT ="yes").

Denominator: Procedures with unfractionated heparin administered(NCDR #7990="unfractionated heparin" and #7995="Yes")

Exclusion(s):

- Procedures with no peak ACT calculation entered in BMC2 (BMC2 Procedure Information-Intraprocedure ACT="Not documented" or value is missing)
- Procedures with glycoprotein IIb/IIIa inhibitors administered (BMC2 Medications Abciximab (Reopro), or Eptifibatide (Integrillin), or Tirofiban (Aggrastat) ="Given" **and** "During")
- Procedures with bivalirudin administered (NCDR #7990=Bivalirudin" and #7995="Yes")
- Procedures with BMC2 Outcomes in Lab "Rescue IIb/IIIa"="Yes"
- Procedures with Chronic Total Occlusion lesion (NCDR #8004="100%" and NCDR#8005="Yes")

When including timeframes Q1 2018 and prior:

Numerator: Number of PCI procedures in which the Peak Activated Clotting Time (ACT)>=350 (BMC2 Procedure Information-Intraprocedure ACT)
Denominator: Total number of PCI procedures which unfractionated heparin was administered (NCDR v 4.4 #9510 Procedure Medications Unfractionated Heparin (any)="yes")).

Exclusion(s):

- Procedures with no peak ACT value entered into BMC2 (BMC2 Procedure Information-Intraprocedure ACT="Not documented" or value is missing)
- Procedures with bivalirudin administered (NCDR v. 4.4 #9510 Procedure Medications Bivalirudin="Yes")
- Procedures with glycoprotein IIb/IIIa inhibitors administered (NCDR v. 4.4 #9510 Procedure Medications GP IIb/IIIa="Yes")

Peak ACT >= 300 Heparin and GPI

Numerator: Number of procedures with peak intra procedure >=300 seconds (BMC2 Procedure Information/Intra-procedure ACT ="yes").

Denominator: Procedures with unfractionated heparin and GPI administered(NCDR #7990="unfractionated heparin"/ #7995="Yes" **AND** BMC2 Medications Abciximab(Reopro), or Eptifibatide (Integrillin), or Tirofiban (Aggrastat) ="Given" and "During")

Exclusion(s):

- Procedures with no peak ACT calculation entered in BMC2 (BMC2 Procedure Information-Intraprocedure ACT="Not documented" or value is missing)
- Procedures with bivalirudin administered (NCDR #7990=Bivalirudin" and #7995="Yes")
- Procedures with BMC2 Outcomes in Lab "Rescue IIb/IIIa"="Yes"
- Procedures with Chronic Total Occlusion lesion (NCDR #8004="100%" and NCDR#8005="Yes")

When including timeframes Q1 2018 and prior:

Numerator: Number of PCI procedures in which the Peak Activated Clotting Time (ACT)>=300 (BMC2 Procedure Information-Intraprocedure ACT)

Denominator: Total number of PCI procedures which unfractionated heparin and GP IIb/IIIa were administered (NCDR v 4.4 #9510 Procedure Medications Unfractionated Heparin (any)="yes" **and** GP IIb/IIIa="yes")).

Exclusion(s):

- Procedures with no peak ACT value entered into BMC2 (BMC2 Procedure Information-Intraprocedure ACT="Not documented" or value is missing)
- Procedures with bivalirudin administered (NCDR v. 4.4 #9510 Procedure Medications Bivalirudin="Yes")

Lesion Details

Total Lesions

Number of lesions with attempted, or noted, treatment in patients discharged during the reporting period (NCDR #8000)

When including timeframes Q1 2019 and prior:

Number of lesions with attempted, or noted treatment in patients discharged during the reporting period (NCDR v 4.4 #7100)

Lesion Success

Numerator: Lesions with stenosis post procedure of equal to or less than 50% in cases of PTCA (NCDR Device=Balloon, Cutting Balloon, or Coated Balloon) only, and equal to or less than 10% in cases where stent is used (NCDR Device= Bare Metal Stent, Coated Stent, Drug Eluting Stent) alone or in combination with PTCA (NCDR Sequence #8025, 8027,8028) and post TIMI flow of 3 (NCDR Sequence #8026).

Denominator: Total lesions

Excludsio(s):

- Lesions with no post stenosis entered (NCDR#8025 blank)
- Lesions with no post TIMI flow entered (NCDR#8026 blank)
- Lesions in which guidewire is not able to cross lesion (NCDR#8023="No")
- Lesions in which no device was deployed (NCDR #8024="No")
- Lesions in which NCDR #8004 "Stenosis Immediately Prior to Rx"=100% **and** NCDR #8005 "If 100% Chronic Total Occlusion"="Yes"

When including timeframes Q1 2018 and prior:

Numerator: Lesions with stenosis post procedure of equal to or less than 50% in cases of PTCA only(NCDR Device=Balloon, Cutting Balloon, or Coated Balloon) , and equal to or less than 10% in cases where stent (NCDR Device= Bare Metal Stent, Coated Stent, Drug Eluting Stent) is used alone or in combination with PTCA (NCDR v 4.4 #7210, 7225) and post TIMI flow of 3 (NCDR v 4.4 #7215).

Denominator: Total lesions excluding those lesions with no post stenosis documented, those cases in which guidewire is not able to cross lesion , those cases in which no device was deployed (NCDR v 4.4 #7210, #7205, #7220) or NCDR #7115 "Stenosis Immediately Prior to Rx"=100% **and** NCDR #7120 "If 100% Chronic Total Occlusion"="Yes"

IVUS/OCT Post PCI

Numerator: Number of procedures where IVUS/OCT was utilized after PCI portion of procedure underway (BMC2 PCI IVUS/OCT post PCI="Yes")

Denminator: Total procedures

Exclusion:

Brachythapy=NCDR #8027/8028 "Intracoronary Device(s) Used"=any device labeled as "Brachy Therapy" via NCDR ICD Device Master list.

*This would not include any adjunctive measurements obtained to diagnostically assess any lesion. Specifically identifies when IVUS/OCT utilized to optimize PCI.

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field.

IVUS/OCT Post LM, ISR, IST

Numerator: Number of procedures where IVUS/OCT was utilized after PCI portion of procedure underway (BMC2 PCI IVUS/OCT post PCI="Yes")

Denominator: Procedures with treated segment of left main (LM) disease (NCDR #8001 segment 11a, 11b, 11c) **and/or** NCDR #8008 "Previously treated Lesion="Yes" **and** NCDR #8010 "Treated with Stent"= "Yes" with either or both of the following being selected NCDR#8011 "In-Stent Restenosis"=Yes", NCDR#8012 "In-Stent Thrombosis"="Yes"

Exclusion:

Brachythapy=NCDR #8027/8028 "Intracoronary Device(s) Used"=any device labeled as "Brachy Therapy" via NCDR ICD Device Master list.

*This would not include any adjunctive measurements obtained to diagnostically assess any lesion. Specifically identifies when IVUS/OCT utilized to optimize PCI.

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field.

LM Intervention

Numerator: The number of procedures that have the left main intervened upon (NCDR #8001 Segment(s) 11a, 11b, 11c).

Denominator: Total procedures

Exclusion(s):

- Prior CABG "Yes" (NCDR#4515)

*This includes any procedure that intervenes upon the left main (left main only interventions as well as multi-vessels procedures that interven upon the left main).

When including timeframes Q1 2018 and prior:

Numerator: The number of procedures that have the left main intervened upon(NCDR v 4.4 # 7105, Segment= 11).

Denominator: Total procedures.

Exclusion(s):

- Prior CABG (NCDR v 4.4="yes")

*This includes any procedure that intervenes upon the left main (left main only interventions as well as multi-vessels procedures that interven upon the left main).

Vein Graft

Numerator: Number of lesions treated located within vein graft vessels. (NCDR #8015="yes", #8016="Vein")

Denominator: Total lesions excluding those lesions which lack documentation of associated field. (NCDR #8015)

When including timeframes Q1 2018 and prior:

Numerator: Number of lesions treated located within vein graft vessels. (NCDR v 4.4 #7175="Vein")

Denominator: Total lesions excluding those lesions which lack documentation of associated field. (NCDR v 4.4 #7175)

Embolic Protection Device

Numerator: Number of vein graft lesions in which an embolic protection device was used. (NCDR #8027/8028="embolic protection")

Denominator: Total number of procedures in which lesion noted to be in vein graft. (NCDR#8015="yes", #8016="Vein")

When including timeframes Q1 2018 and prior:

Numerator: Number of vein graft lesions in which an embolic protection device was used (NCDR v 4.4 #7225="embolic protection device").

Denominator: Number of lesions treated located within vein graft vessels. (NCDR v 4.4 #7175="vein").

Calcium Modification Therapy (Any)

Numerator: Number of procedures where NCDR#8027,8028 "Intracoronary Device(s) Used" device type= "Atherectomy" and/or "Laser" and/or "Lithotripsy"

Denominator: Total procedures

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedures where NCDR#8027,8028 "Intracoronary Devic(s) Used" device type= "Atherectomy"and/or "Laser". (Last available device list for this version July 2017)

Denominator: Total procedures

Orbital or Rotational Device

Numerator: Number of procedures where NCDR#8027,8028 "Intracoronary Device(s) Used" device type= "Atherectomy"

Denominator: Number of procedures where NCDR#8027,8028 "Intracoronary Device(s) Used" device type= "Atherectomy" and/or "Laser" and/or "Lithotripsy"

*if multiple calcium modification device types are utilized the procedure will be included in the numerator of each category.

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedures where NCDR#8027,8028 "Intracoronary Devic(s) Used" device type= "Atherectomy"

Denominator: Number of procedures where NCDR#8027,8028 "Intracoronary Devic(s) Used" device type= "Atherectomy"and/or "Laser". (Last available device list for this version July 2017)

Laser Device

Numerator: Number of procedures where NCDR#8027,8028 "Intracoronary Device(s) Used" device type= "Laser"

Denominator: Number of procedures where NCDR#8027,8028 "Intracoronary Device(s) Used" device type= "Atherectomy" and/or "Laser" and/or "Lithotripsy"

*if multiple calcium modification device types are utilized the procedure will be included in the numerator of each category.

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedures where NCDR#8027,8028 "Intracoronary Devic(s) Used" device type= "Laser"

Denominator: Number of procedures where NCDR#8027,8028 "Intracoronary Devic(s) Used" device type= "Atherectomy"and/or "Laser". (Last available device list for this version July 2017)

Lithotripsy Device

Numerator: Number of procedures where NCDR#8027,8028 "Intracoronary Device(s) Used" device type= "Lithotripsy"

Denominator: Number of procedures where NCDR#8027,8028 "Intracoronary Device(s) Used" device type= "Atherectomy" and/or "Laser" and/or "Lithotripsy"

*if multiple calcium modification device types are utilized the procedure will be included in the numerator of each category.

When including timeframes of Q1 2018 and prior, no equivalent field available

Chronic Total Occlusion

Numerator: Number of procedures with at least one lesion entered as NCDR #8004 "Stenosis Immediately Prior to Rx"=100% **and** NCDR #8005 "If 100% Chronic Total Occlusion"="Yes"

Denominator: Total procedures

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedures in which at least one lesion entered as NCDR #7115 "Stenosis Immediately Prior to Rx"=100% **and** NCDR #7120 "If 100% Chronic Total Occlusion"="Yes"

Denominator: Total procedures

CTO-Acute Coronary Syndrome

Numerator: Number of procedures in which the PCI indication is documented as any of these options: ST-Elevation MI (STEMI) or equivalent, NSTE-ACS (NCDR#7825).

Denominator: Chonic Total Occlusion

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedure in which the PCI indication is documented as any of these options: STEMI or equivalent, PCI for high risk Non-STEMI or unstable angina (NCDR V 4.4 #7035)

Denominator: Chronic Total Occlusion

CTO Technical Success (ACS)

Numerator: NCDR#8025 "Stenosis (Post-Intervention) <= 30%, **and** NCDR#8026 "TIMI flow (Post Intervention)"= "III",

Denominator: Number of lesions where NCDR #8004 "Stenosis Immediately Prior to Rx"=100% **and** NCDR #8005 "If 100% Chronic Total Occlusion"="Yes" **AND** NCDR #7825 PCI indication=ST-Elevation MI (STEMI) or equivalent, NSTE-ACS

When including timeframes of Q1 2018 and prior:

Numerator: NCDR#7210 "Stenosis (Post-Intervention) <= 30%, **and** NCDR#7215 "Post Procedure TIMI flow"= "III"

Denominator: Number of lesions where NCDR #7115 "Stenosis Immediately Prior to Rx"=100% **and** NCDR #7120 "If 100% Chronic Total Occlusion"="Yes" **AND** PCI indication is documented as any of these options: STEMI or equivalent, PCI for high risk Non-STEMI or unstable angina (NCDR V 4.4 #7035)

CTO Procedural Success (ACS)

Numerator: NCDR#8025 "Stenosis (Post-Intervention) <= 50%, **and** NCDR#8026 "TIMI flow (Post Intervention)"= "III", **and** NCDR#9001 "Intra and Post-Procedure Events-Cardiac Tamponade"="No", **and** NCDR#9001 "Intra and Post-Procedure Events-Stroke Hemorrhagic"="No", **and** NCDR#9001 "Intra and Post-Procedure Events-Stroke Ischemic"="No", **and** NCDR#9001 "Intra and Post-Procedure Events-Stroke Undetermined"="No", **and** NCDR#10035 "If CABG-CABG Status=null or "elective", **and** NCDR#10105 "Discharge Status"="Alive".

Denominator:CTO-Acute Coronary Syndrome

*If more than one CTO lesion is attempted and/or treated during the same procedure all must be successfully treated to be considered a successful CTO procedure.

When including timeframes of Q1 2018 and prior:

Numerator: NCDR#7210 "Stenosis (Post-Intervention) <= 50%, **and** NCDR#7215 "Post Procedure TIMI flow"= "III", **and** NCDR#8025 Tamponade"="No", **and** NCDR#8015 CVA-Stroke"="No", **and** NCDR#9005 "If CABG-CABG Status=null or "elective", **and** NCDR#9040 "Discharge Status"="Alive".

Denominator: CTO-Acute Cornoary Syndrome

CTO Non-ACS

Numerator: Number of procedures in which the PCI indication is documented as any of these options: New Onset Angina <=2 months, Stable Angina, CAD (without Ischemic Sx), or Other (NCDR#7825).

Denominator: Chonic Total Occlusion

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedure in which the PCI indication is documented as any of these options: Staged PCI or Other (NCDR V 4.4 #7035)

Denominator: Chronic Total Occlusion

CTO Technical Success (Non-ACS)

Numerator: NCDR#8025 "Stenosis (Post-Intervention) <= 30%, **and** NCDR#8026 "TIMI flow (Post Intervention)"= "III",

Denominator: Number of lesions where NCDR #8004 "Stenosis Immediately Prior to Rx"=100% **and** NCDR #8005 "If 100% Chronic Total Occlusion"="Yes" **AND** NCDR #7825 PCI indication=New Onset Angina <=2 months, Stable Angina, CAD (without Ischemic Sx), or Other.

When including timeframes of Q1 2018 and prior:

Numerator: NCDR#7210 "Stenosis (Post-Intervention) <= 30%, **and** NCDR#7215 "Post Procedure TIMI flow"= "III"

Denominator: Number of lesions where NCDR #7115 "Stenosis Immediately Prior to Rx"=100% **and** NCDR #7120 "If 100% Chronic Total Occlusion"="Yes" **AND** PCI indication is documented as any of these options: Staged PCI or Other (NCDR V 4.4 #7035)

CTO Procedural Success (Non-ACS)

Numerator: NCDR#8025 "Stenosis (Post-Intervention) <= 50%, **and** NCDR#8026 "TIMI flow (Post Intervention)"= "III", **and** NCDR#9001 "Intra and Post-Procedure Events-Cardiac Tamponade"="No", **and** NCDR#9001 "Intra and Post-Procedure Events-Stroke Hemorrhagic"="No", **and** NCDR#9001 "Intra and Post-Procedure Events-Stroke Ischemic"="No", **and** NCDR#9001 "Intra and Post-Procedure Events-Stroke Undetermined"="No", **and** NCDR#10035 "If CABG-CABG Status=null or "elective", **and** NCDR#10105 "Discharge Status"="Alive".

Denominator:CTO Non-ACS

*If more than one CTO lesion is attempted and/or treated during the same procedure all must be successfully treated to be considered a successful CTO procedure.

When including timeframes of Q1 2018 and prior:

Numerator: NCDR#7210 "Stenosis (Post-Intervention) <= 50%, **and** NCDR#7215 "Post Procedure TIMI flow"= "III", **and** NCDR#8025 Tamponade"="No", **and** NCDR#8015 CVA-Stroke"="No", **and** NCDR#9005 "If CABG-CABG Status=null or "elective", **and** NCDR#9040 "Discharge Status"="Alive".

Denominator: CTO-Non ACS

Radiation

Fluoroscopy Time

Average and standard deviation calculations of fluoroscopy time reported in minutes for all PCI procedures in the appropriate timeframe (NCDR #7214).

When including timeframes Q1 2018 and prior:

Average and standard deviation calculations of fluoroscopy time reported in minutes for all PCI procedures in the appropriate timeframe (NCDR v 4.4 # 5320)

Kerma Area Product

Average and standard deviation calculations of Kerma Area Product (KAP; also known as: Dose Area Product (DAP)) reported in Gy.cm2 for all PCI procedures in the appropriate timeframe (NCDR#7220).

When including timeframes Q1 2018 and prior:

Average and standard deviation calculations of Kerma Area Product (KAP; AKA Dose Area Product (DAP)) reported in $Gy \cdot cm^2$ (BMC2 Procedure Information)

**Please note that the method in which values were entered varied for this field. Q1 2018 and prior, values were converted to the units being collected by the abstractor then entered into BMC2. Starting with Q2 2018 data, these values were added to the NCDR CathPCI dataset where the method is to enter the value and units noted, any conversion is performed via programming.

Air Kerma

Average and standard deviation calculations of Air Kerma (AK; Cumulative Air Kerma) reported in Gy for all PCI procedures in the appropriate timeframe (NCDR #7210)

When including timeframes Q1 2018 and prior:

Average and standard deviation calculations of Air Kerma (AK; Cumulative Air Kerma) reported in Gy for all PCI procedures in the appropriate timeframe (BMC2 Procedure Information)

**Please note that the method in which values were entered varied for this field. Q1 2018 and prior, values were converted to the units being collected by the abstractor then entered into BMC2. Starting with Q2 2018 data, these values were added to the NCDR CathPCI dataset where the method is to enter the value and units noted, any conversion is performed via programming.

Air Kerma ≥5Gy

Number of cases in which Air Kerma dose entered is ≥5Gy (NCDR#7210).

Air Kerma ≥15Gy

Number of cases in which Air Kerma dose entered is ≥15Gy (NCDR#7210).

Cardiorenal Measures

Contrast Per Case

Average and standard deviation calculations of contrast amounts reported in milliliters (ml) for **all** PCI procedures performed during the timeframe being reported (NCDR #7215).

When including timeframes Q1 2018 and prior:

Average and standard deviation calculations of contrast volume reported in milliliters for all PCI procedures performed during the timeframe being reported (NCDR v 4.4 #5325).

Ratio of Contrast Volume to eGFR

This ratio is calculated by dividing the contrast volume by the eGFR. ***Excludes patients on dialysis (NCDR#4560)***

Please note: eGFR is calculated by using the National Kidney Foundation[®] Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula via the equation found here https://www.kidney.org/content/ckd-epi-creatinine-equation-2021 .

Fields utilized for this calculation are:

- NCDR #6050 "Creatinine" (BMC2 PCI calculation presumes entry of a standardized serum creatinine)
- NCDR #3001 "Arrival Date/Time"- NCDR #2050 "Birth Date" =Age in years
- NCDR #2060 "Sex"

CKD-EPI Creatinine Equation (2021)

Expressed as a single equation:

eGFRcr = 142 x min(Scr/κ, 1)α x max(Scr/κ, 1)-1.200 x 0.9938Age x 1.012 [if female]

where:

Scr = standardized serum creatinine in mg/dL

κ = 0.7 (females) or 0.9 (males)

α = -0.241 (female) or -0.302 (male)

min(Scr/κ, 1) is the minimum of Scr/κ or 1.0

max(Scr/κ, 1) is the maximum of Scr/κ or 1.0

Age (years)

Interpretation example:

Contrast dose=150ml   eGFR=50   would equal ratio of 3.0

Contrast dose=100ml   eGFR=50 would equal ratio of 2.0

Contrast dose= 35ml   eGFR= 50 would equal ratio of 0.7

A lower ratio is more desirable than a higher ratio. Higher ratio is associated with higher incidence of CIN.

≥3 (significant risk of CIN)

Numerator: Number of procedures noted to have ratio of contrast dose (Contrast Volume/GFR) with results ≥ 3. (NCDR Sequence #'s: 2050, 2060, 3001, 6050, 7215).

Denominator: Total procedures.

Exclusion(s):

- Procedures lacking information in any of the data fields used to calculate this field
- Patients currently on dialysis (#4560)

Example:

Contrast Volume 150, eGFR 50, calculated as 150/50=3.0 THIS VALUE WOULD PLACE THIS CASE IN THE ≥ 3 LINE.

When includeing timeframes Q1 2018 and prior:

Numerator: Number of procedures noted to have ratio of contrast dose (Contrast Volume/GFR) with results ≥ 3. (NCDR Sequence #'s: 2050, 2060, 7315, 5325).

Denominator: Total procedures with exclusion of procedures lacking information in data fields used to calculate this field, as well as patients currently on dialysis (#4065). Including DOB, sex, serum creatinine, and contrast volume.

Exclusion(s):

- NCDR v 4.4 #4065 dialysis="yes"
- Procedures lacking information in any of the data fields used to calculate this field

≤1 (ultra low)

Numerator: Number of procedures noted to have ratio of contrast dose (Contrast Volume/GFR) with results ≤1 (NCDR Sequence #'s: 2050, 2060, 3001, 6050, 7215)

Denominator: Total procedures.

Exclusion(s):

- Procedures lacking information in data fields used to calculate this field
- Patients currently on dialysis (#4560)

Example:
Contrast Volume 35, eGFR 50, calculated as 35/50=0.7 THIS VALUE WOULD PLACE THIS CASE IN THE ≤1 LINE.

When includeing timeframes Q1 2018 and prior:

Numerator: Number of procedures noted to have ratio of contrast dose (Contrast Volume/GFR) with results ≤1 . (NCDR Sequence #'s: 2050, 2060, 7315, 5325).

Denominator: Total procedures with exclusion of procedures lacking information in data fields used to calculate this field, as well as patients currently on dialysis (#4065). Including DOB, sex, serum creatinine, and contrast volume.

Exclusion(s):

- NCDR v 4.4 #4065 dialysis="yes"
- Procedures lacking information in any of the data fields used to calculate this field

Contrast Induced Nephropathy (CIN)

Numerator: Number of procedures with calculated difference between pre and post procedure creatinine of ≥0.5 mg/dl (post-pre= ≥0.5 mg/dl). (NCDR Sequence #'s:8510, 6050). In cases where no post procedure creatinine value is available(NCDR # 8510), then discharge creatinine (NCDR#10060) will be utilized.

Denominator: Procedures (including Same Day Discharge with no post Creatinine value)

Exclusion(s):

- Procedures with missing creatinine values(NCDR #s 8510, 10060, or 6050) if discharge date (NCDR#10101) is not the same date as procedure start (NCDR#7000)
- Documented death in lab (NCDR#10120)
- Currently on Dialysis (NCDR Sequence # 4560)

Example 1: Pre Cr. 2.0mg/dl, Post Cr. 2.5mg/dl=CIN

Example 2: Pre Cr. 2.0mg/dl, Post Cr. not entered, Discharge Cr. 2.5mg/dl=CIN

Example 3: Pre Cr. 2.0mg/dl, Post Cr. 2.3mg/dl, Disharge Cr. 2.7mg/dl=No CIN (discharge value only utilized if no post value)

Example 4: Proc date 1/1/21, DC date 1/2/21, Pre Cr. 1.4 mg/dl, No Post Cr., No DC Cr=procedure excluded

Example 5: Proc date 1/1/21, DC date 1/1/21, Pre Cr. 1.1 mg/dl, No Post Cr., No DC Cr=procedure included in denominator, not in numerator

Example 6: Proc #1 date 1/1/21, Pre Cr. 0.8 mg/dl, Post Cr. 0.9 mg/dl, Proc #2 date 1/3/21, Pre Cr. 0.9 mg/dl, No Post Cr, No DC Cr = Proc#1 No CIN, Proc#2 in denominator, not in numerator

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with calculated difference between pre and post procedure creatinine of at least 0.5 mg/dl (post-pre>=0.5 mg/dl). (NCDR v 4.4 #'s: 7315, 7341)

Denominator: Total Procedures

Exclusion(s):

- NCDR v 4.4 #7315/7340 creatinine values missing if discharge date (NCDR#10101) is not the same date as procedure(NCDR#9035)
- NCDR v 4.4 #9055 death in lab="yes"
- NCDR v 4.4 #4065 dialysis="yes"

**When comparing prior data and data from current version be mindful that the fields utilized on prior reports may have been different between V 4.4 and V5 which will alter numerical values. Beginning with Q1 2015 PCI reports, sites entering creatinine in BMC2, had CIN calculated using ONLY the BMC2 creatinine values. BMC2 values were entered utilizing the entire Creatinine value as entered. When NCDR creatinines are utilized we must expect different results as values entered into CathPCI were truncated and that coding instructions related to rounding varied throughout V 4.4 .

*results will appear different than historical reports due to inclusion of extraction devices

Nephropathy Requiring Dialysis

Numerator: Number of procedures with intra and post procedure event new requirement for dialysis documented "yes" (NCDR Sequence # 9001/9002).

Denominator: Total procedures

Exclusion(s):

- Death during the procedure (NCDR #10120)
- Currently on dialysis (NCDR #4650)

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with intra and post procedure event (NCDR v 4.4 #8030) new requirement for dialysis= yes

Denominator: Total Procedures

Exclusion(s):

- NCDR v 4.4 #9055 expired in lab="yes"
- NCDR v 4.4 #4065 dialysis="yes"

LVEDP Measured

Numerator: Number of cases with LVEDP value entered (BMC2 Procedure Information-LVEDP)

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of cases with LVEDP value entered (BMC2 Procedure Information-LVEDP)

Denominator: Total procedures

Pre or Post IV Hydration

Numerator: Number of procedures noted to have BMC2 Hydration-Intravenous fluid administered= pre and/or post PCI

Denominator: Total procedures.

Exclusion(s):

- Currently on Dialysis=yes (NCDR #4560)
- Cardiac Arrest Out of Healthcare Facility=yes (NCDR #4630)
- Cardiac Arrest at Transferring Healthcare facility=yes (NCDR #4635)
- Cardiac Arrest at this facility=yes (NCDR #7340)
- Cardiovascular instability=yes (NCDR #7410)
- PCI status=salvage (NCDR #7800)
- Heart Failure=yes (NCDR #4001) with NYHA=II, III, IV (NCDR #4011)
- Procedures with only post IV hydration noted will be excluded if LVEDP ≥25mmHg

*Please note that discharges with Heart Failure=yes and NYHA=I are included.

When including timeframes Q1 2018 and prior:

Numerator: Procedures with pre and/or post hydration of any duration documented in the BMC2 Medications/Saline section="given" and any timeframe="pre" and/or "post"

Denominator: Total procedures.

Exclusion(s):

- NCDR v 4.4 #4065 Dialysis="yes" (was excluded on prior reports)
- BMC2 Patient History/Comorbidity Cardiac Arrest within 24 hours="yes" (not excluded on prior reports/not an exact match with version 5.0 field)
- NCDR v 4.4 #7020 PCI Status="salvage" (not excluded on prior reports)
- NCDR v 4.4 #5040 Heart Failure w/in 2 weeks="yes" **and** NCDR v 4.4 #5045 NYHA=II, III, IV (not excluded on prior reports)
- NCDR v 4.4 #5060 Cardiogenic Shock w/in 24 hours="yes" (not excluded on prior reports/not an exact match with version 5.0 field)

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Pre IV Hydration

Numerator: Number of procedures noted to have intravenous fluid administered pre PCI (BMC2 Hydration-Intravenous)

Denominator: Total procedures

Exclusion(s):

- Currently on Dialysis=yes (NCDR #4560)
- Cardiac Arrest Out of Healthcare Facility=yes (NCDR #4630)
- Cardiac Arrest at Transferring Healthcare facility=yes (NCDR #4635)
- Cardiac Arrest at this facility=yes (NCDR #7340)
- Cardiovascular instability=yes (NCDR #7410)
- PCI status=salvage (NCDR #7800)
- Heart Failure=yes (NCDR #4001) with NYHA=II, III, IV (NCDR #4011)

*Please note that discharges with Heart Failure=yes and NYHA=I are included.

When including timeframes Q1 2018 and prior:

Numerator: cases with prehydration of any duration documented BMC2 Medications/Saline section="given" and any timeframe="pre"

Denominator: total procedures.

Exclusion(s):

- NCDR v 4.4 #4065 Dialysis="yes" (was excluded on prior reports)
- BMC2 Patient History/Comorbidity Cardiac Arrest within 24 hours="yes" (not excluded on prior reports/not an exact match with version 5.0 field)
- NCDR v 4.4 #7020 PCI Status="salvage" (not excluded on prior reports)
- NCDR v 4.4 #5040 Heart Failure w/in 2 weeks="yes" **and** NCDR v 4.4 #5045 NYHA=II, III, IV (not excluded on prior reports)
- NCDR v 4.4 #5060 Cardiogenic Shock w/in 24 hours="yes" (not excluded on prior reports/not an exact match with version 5.0 field)

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Post IV Hydration

Numerator: Number of procedures noted to have intravenous fluid administered post PCI (BMC2 Hydration-Intravenous)

Denominator: Total procedures

Exclusion(s):

- Currently on Dialysis=yes (NCDR #4560)
- Cardiac Arrest Out of Healthcare Facility=yes (NCDR #4630)
- Cardiac Arrest at Transferring Healthcare facility=yes (NCDR #4635)
- Cardiac Arrest at this facility=yes (NCDR #7340)
- Cardiovascular instability=yes (NCDR #7410)
- PCI status=salvage (NCDR #7800)
- Heart Failure=yes (NCDR #4001) with NYHA=II, III, IV (NCDR #4011)
- LVEDP= ≥25mmHg (BMC2 Procedure information LVEDP)

*Please note that discharges with Heart Failure=yes and NYHA=I are included.

When including timeframes Q1 2018 and prior:

Numerator: cases with post hydration of any duration documented BMC2 Medications/Saline section="given" and any timeframe="post"

Denominator: total procedures.

Exclusion(s):

- NCDR v 4.4 #4065 Dialysis="yes" (was excluded on prior reports)
- BMC2 Patient History/Comorbidity Cardiac Arrest within 24 hours="yes" (not excluded on prior reports/not an exact match with version 5.0 field)
- NCDR v 4.4 #7020 PCI Status="salvage" (not excluded on prior reports)
- NCDR v 4.4 #5040 Heart Failure w/in 2 weeks="yes" **and** NCDR v 4.4 #5045 NYHA=II, III, IV (not excluded on prior reports)
- NCDR v 4.4 #5060 Cardiogenic Shock w/in 24 hours="yes" (not excluded on prior reports/not an exact match with version 5.0 field)
- LVEDP= ≥25mmHg (BMC2 Procedure information LVEDP)

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Pre-Hydration (volume/≥3ml/Kg)

Numerator: Number of procedures noted to have BMC2 Hydration-Intravenous and/or Oral Pre fluid vol/≥3ML/Kg (BMC2 PCI Hydration Intravenous Given="Yes" and/or BMC2 PCI Hydration Oral Given="Yes" and number of ml's entered divided by weight entered in "kg" (NCDR#6005) =≥3ml) Formula: PO+IV hydration/Kg=Xml

Denominator: Total number of procedures where patient is noted to have eGFR < 60

Exclusion(s):

- Currently on Dialysis=yes (NCDR #4560)
- Cardiac Arrest Out of Healthcare Facility=yes (NCDR #4630)
- Cardiac Arrest at Transferring Healthcare facility=yes (NCDR #4635)
- Cardiac Arrest at this facility=yes (NCDR #7340)
- Cardiovascular instability=yes (NCDR #7410)
- PCI status=salvage (NCDR #7800)
- Heart Failure=yes (NCDR #4001) with NYHA=II, III, IV (NCDR #4011)
- PCI Indication= STEMI – Immediate PCI for Acute STEMI (NCDR #7825)

*Please note that discharges with Heart Failure=yes and NYHA=I are included.

** Assume maximum body weight 100 kg

Examples:

Patient presents for elective PCI, weighs 100kg, has none of the exclusions above. They receive 500ml IVF pre-procedure. Calculation 500/100=5ml/kg, This example would be included in the numerator for this measure.

Patient presents for elective PCI, weighs 100kg, has noe of the exclusions above. They receive 250ml IVF pre-procedure. Calculation 250/100=2.5ml/kg.   This example would *not* be included in the numerator for this measure.

When including timeframes Q1 2018 and prior:

**When comparing prior data and data from current version there is no field that provides volume of fluid infused, therefore this measure can not be calculated using NCDR V 4.4 and BMC2 2018 Q1 (and prior quarters).

Pre-hydration(vol/≥3ML/Kg)eGFR <60

Numerator: Number of procedures noted to have BMC2 Hydration-Intravenous and/or Oral Pre fluid vol/≥3ML/Kg (BMC2 PCI Hydration Intravenous Given="Yes" and/or BMC2 PCI Hydration Oral Given="Yes" and number of ml's entered divided by weight entered in "kg" (NCDR#6005) =≥3ml) Formula: PO+IV hydration/Kg=Xml

Denominator: Total number of procedures where patient is noted to have eGFR < 60.

Exclusion(s):

- Currently on Dialysis (NCDR Sequence # 4560)
- Cardiac Arrest Out of Healthcare Facility=yes (NCDR #4630)
- Cardiac Arrest at Transferring Healthcare facility=yes (NCDR #4635)
- Cardiac Arrest at this facility=yes (NCDR #7340)
- Cardiovascular instability=yes (NCDR #7410)
- PCI status=salvage (NCDR #7800)
- Cardiac Arrest within 24 hours (BMC2 Pt Hx and Comorbidity)
- Symptomatic Heart Failure=yes (NCDR #4001) with NYHA=II, III, IV (NCDR #4011)
- PCI Indication= STEMI – Immediate PCI for Acute STEMI (NCDR #7825)

*Please note that discharges with Heart Failure=yes and NYHA=I are included.

** Assume maximum body weight 100 kg

Please note: eGFR is calculated by using the National Kidney Foundation® Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula via the equation found here https://www.kidney.org/content/ckd-epi-creatinine-equation-2021 .

Fields utilized for this calculation are:

- NCDR #6050 "Creatinine" (BMC2 PCI calculation presumes entry of a standardized serum creatinine)
- NCDR #3001 "Arrival Date/Time"- NCDR #2050 "Birth Date" =Age in years
- NCDR #2060 "Sex"

CKD-EPI Creatinine Equation (2021)

Expressed as a single equation:

eGFRcr = 142 x min(Scr/κ, 1)α x max(Scr/κ, 1)-1.200 x 0.9938Age x 1.012 [if female]

where:

Scr = standardized serum creatinine in mg/dL

κ = 0.7 (females) or 0.9 (males)

α = -0.241 (female) or -0.302 (male)

min(Scr/κ, 1) is the minimum of Scr/κ or 1.0

max(Scr/κ, 1) is the maximum of Scr/κ or 1.0

Age (years)

Other Key Performance Measures

Cardiac Rehabilitation Referral

Numerator: Number of discharges with NCDR Sequence # 10116cardiac rehabilitation referral="Yes"

Denominator: Discharges with any successfully treated lesion (NCDR #8024 Device deployed) with discharge status "Alive" (NCDR #10105) and discharge location (NCDR #10110) marked as "Home".

Exclusions:

- Discharges with no successful lesions ("successful" = NCDR #8023 "yes" AND NCDR #8024 "yes")
- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected
- Discharges with the following discharge locations (NCDR #10110 and #10115) : Skilled Nursing facility, Extended care/TCU/rehab, Other, Other acute care hospital, Left against medical advice, Hospice.
- Comfort Measures Only="Yes" (NCDR #10075)
- Discharges with the following rationale for lack of cardiac rehabilitation referral (NCDR #10116): No-Medical Reason Documented, No-Health Care System Reason Documented.

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 Sequence # 9050 cardiac rehabilitation referral="Yes"

Denominator: Discharges with NCDR v 4.4 #9040 Discharge status="Alive" with NCDR v 4.4 # 9045 discharge location marked as "Home".

Exclusions: :

- NCDR v 4.4 #7205 Guidewire Across Lesion= "no" for ALL lesions in ALL procedures during the discharge being reported
- NCDR v 4.4 #9000 CABG= "yes"
- NCDR v 4.4 # 9050 Cardiac Rehabilitation referral= "inelegible"
- NCDR v 4.4 #9045 Discharge location="patients transferred to another acute care facility"" hospice", 'who left against medical advice (AMA)",' extended care/TCU/rehab'," nursing home", or "other"

*Data entry selections are different from V 4.4 to V 5.0, this will affect numerical values

Cardiac Rehab Liaison

Numerator: Number of discharges with BMC2 PCI "Cardiac Rehab Liaison"="Yes"

Denominator: Discharges with any successfully treated lesion (NCDR #8024 Device deployed) with discharge status "Alive" (NCDR #10105) and discharge location (NCDR #10110) marked as "Home".

Exclusions:

- Discharges with no successful lesions ("successful" = NCDR #8023 "yes" AND NCDR #8024 "yes")
- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected
- Discharges with the following discharge locations (NCDR #10110 and #10115) : Skilled Nursing facility, Extended care/TCU/rehab, Other, Other acute care hospital, Left against medical advice, Hospice.
- Comfort Measures Only="Yes" (NCDR #10075)
- Discharges with the following rationale for lack of cardiac rehabilitation referral (NCDR #10116): No-Medical Reason Documented, No-Health Care System Reason Documented.

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for some fields utilized for this measure.

P2Y12 Duration Documented

Numerator: Number of discharges with BMC2 PCI "P2Y12 Duration"="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" that have had *any* successful stent implantation (NCDR#8027/8028 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10025 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10030 Intervention(s) this hospitalization="Yes" and NCDR #10031 Type="CABG"
- Discharges with no successful lesions ("successful" = NCDR #8023 "yes" AND NCDR #8024 "yes")

Surgical Consult

Numerator: Number of procedures with NCDR #7815 surgical consultation ="yes"

Denominator: Procedures with severe left main (LM) disease (NCDR #7507 segment 11a, 11b, 11c with NCDR #7508 documented >=50%) and/**or** 3 vessel disease with proximal LAD involvement (NCDR field #7507 segments 12, 18, 19, 19a, 1,2,3, 28 with NCDR #7508 documented >=70% and/or NCDR

#7511="yes" with child field #7512<=0.8 or child field #7513 <=0.86).

Exclusions:

- Prior CABG=yes (NCDR #4515)
- Cardiac Arrest Out of Healthcare Facility=yes (NCDR #4630)
- Cardiac Arrest at Transferring Healthcare facility=yes (NCDR #4635)
- Cardiac Arrest at this facility=yes (NCDR #7340)
- Cardiovascular instability=yes (NCDR #7410)
- PCI Indication=STEMI which would apply to all of the following PCI Indication STEMI selections: STEMI-Immediate PCI for Acute STEMI, STEMI-Stable (<=12 hrs from Sx), STEMI-Stable (>12 hrs from Sx), STEMI-Unstable (>12 hrs from Sx), STEMI (after successful lytics), STEMI-Rescue (after unsuccessful lytics) (NCDR #7825)
- Isolated Left main disease >=50% with MLA >6mm^2 (NCDR #7514/7515 or 7534/7535)

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field.

Same Day Discharge

Numerator: Discharges with the arrival date (NCDR #3001) and discharge date occurring during (NCDR #10101) the same calendar day.

Denominator: Discharges with PCI indication (NCDR#7825) "New Onset Angina<= 2 months", "Stable Angina", CAD (without Ischemic Sx), discharge status "Alive" (NCDR #10105) and discharge location (NCDR #10110) marked as "Home", "Skilled Nursing facility", "Extended care/TCU/rehab", "other".

Exclusion(s):

- PCI indication (NCDR #7825) "STEMI-Immedicate PCI for Acute STEMI", "STEMI-stable (<=12 hrs from Sx)", STEMI-Stable (>12 hrs from Sx)", "STEMI-Unstable (>12 hrs from Sx)", STEMI (after successful lytics)", STEMI-Rescue (after unsuccessful lytics)
- PCI indication (NCDR #7825) "NSTE-ACS" ***AND*** BMC2 indication for procedure NSTE-ACS (BMC2 Procedure information)selected option ="NSTEMI'.
- Unsuccessful lesions (NCDR #8023="No" **OR** NCDR Sequence #8024="No")
- Discharges with the following discharge locations (NCDR #10110 and #10115) : Other acute care hospital, Left against medical advice, Hospice.
- Discharges status "Deceased" (NCDR #10105)
- Comfort Measures Only="Yes" (NCDR #10075)

When including timeframes Q1 2018 and prior:

- NCDR v 4.4 #7035 PCI indication "STEMI-Immedicate PCI for Acute STEMI", "STEMI-stable (<=12 hrs from Sx)", "STEMI-Stable (>12 hrs from Sx)", "STEMI-Unstable (>12 hrs from Sx)", STEMI (after successful lytics)", STEMI-Rescue (after unsuccessful lytics), PCI for high risk Non-STEMI or unstable angina
- NCDR v 4.4 #7205 Guidewire across lesion="No" **OR** NCDR Sequence #7220 Device(s) Deployed="No"
- NCDR v 4.4 #9045 Discharge location: Other acute care hospital, Left against medical advice, Hospice.
- NCDR v 4.4 #9040 Discharge status= "Deceased"

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Current Smoker

Numerator*: Discharges with NCDR #4625 tobacco use =Current-Every Day, Current-Some Days

Denominator: Discharges with discharge status "Alive" (NCDR #10105) and discharge location (NCDR# 10110) marked as "Home"

Exclusion(s):

- NCDR #10110 Discharge location=" Other,other acute care hospital"," Left against medical advice (AMA)", "Skilled Nursing facility", "Extended care/TCU/rehab"
- NCDR #10115 Hospice Care="Yes"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior:

Numerator: Discharges with NCDR v 4.4 Current Smoker="Yes"

Denominator: Discharges with NCDR v 4.4 #9040 Discharge Status="alive" and NCDR v 4.4 #9045 Discharge Location="Home",

Exclusion(s):

- NCDR v 4.4 #9045 Discharge location="other acute care hospital, left against medical advice (AMA), other, Hospice,Extended care/TCU/rehab", "Nursing Home

*When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values

Smoking Cessation

Numerator: Discharges with BMC2 Counsel Smoking Cessation="Yes"

Denominator: Discharges with tobacco use (NCDR #4625) =Current-Every Day, Current-Some Days with discharge status "Alive" (NCDR #10105) and discharge location (NCDR# 10110) marked as "Home", .

Exclusion(s):

- NCDR#10110 Discharge location=" other acute care hospital", " Left against medical advice (AMA)", "Skilled Nursing facility", "Extended care/TCU/rehab"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10105 Discharge Status="Deceased"

When including timeframes Q1 2018 and prior:

Numerator: Discharges with documented smoking cessation counseling via BMC2 (Discharge Education) Smoking cessation counsel="Yes".

Denominator: Discharges with NCDR v 4.4 #9040 dischargestatus=" Alive" **and** NCDR v 4.4 #4000 Current Smoker="Yes"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9040 discharge status "deceased"

Morbidity and Mortality

Discharged to Other Acute Care Hospital

Numerator: Number of discharges with NCDR#10110 "Discharge Location" of "Other Acute Care Hospital".

Denominator*:* Discharges with NCDR #10105 "Discharge Status"=Alive

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field.

Transferred for CABG-EPCI only

Numerator: Number of discharges with documentation of NCDR #10111 Transferred for CABG="yes"

Denominator*:* Discharges

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field.

VT/VF Requiring Tx Post

Numerator: Number of procedures with BMC2 outcomes post lab VT/VF Requiring Treatment="yes".

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with BMC2 outcomes post lab VT/VF Requiring Treatment="yes".

Denominator: Total procedures

Stroke Post Proc

Numerator: Number of procedures in which stroke (NCDR#9001) including: hemorrhagic, ischemic, undetermined are documented "yes" (NCDR #9002) and the event date/time (NCDR # 9003) is documented as occurring after procedure end date/time (NCDR #7005).

Denominator: Total procedures

Example 1: case entered NCDR#9001 stroke (hemorrhagic, ischemic, undetermined)=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 10:20
Since the event is documented as occurring after procedure end, this outcome would be included in the numerator.

Example 2: case entered NCDR#9001 stroke (hemorrhagic, ischemic, undetermined=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 11:45
Since the event is documented as occurring before procedure end, this outcome would not be included in the numerator.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures where BMC2 Outcome in Lab Stroke/TIA="no" and NCDR v 4.4 #8015 intra and post procedure stroke ="yes"

Denominator: Total procedures

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Bleeding

Numerator: procedures with documented bleeding event (NCDR #9001) events included: "Bleeding-Access Site", "Bleeding-Gastrointestinal", "Bleeding-Genitourinary", " "Bleeding-Hematoma at Access Site", "Bleeding-Other", "Bleeding-Retroperitoneal", "Cardiac Tamponade", Stroke-Hemorrhagic". (NCDR#9002="Yes")

Denominator: All procedures.

Exclusion(s):

- CABG during this hospitalization (NCDR #10030="yes" and NCDR#10031='CABG")

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field coding instructions are much different between V 5.0 and V 4.4

Major Bleeding

Numerator: Procedures with decrease from NCDR#6030 Pre Procedure Hgb to NCDR #8505 Post Procedure Hgb is >=5gm/dl

Denominator: All procedures

Exclusion(s):

- NCDR#7422="Yes" **AND** NCDR #7423="Extracorporeal Membrane Oxygenation (ECMO)" or "Combined Extracorporeal Membrane Oxygenation and Percutaneous Left Ventricular Assist Device (ECPELLA)"
- NCDR#10030="Yes"

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for some fields utilized for this measure.

Cardiogenic Shock Post Proc.

Numerator*:* Number of procedures in which cardiogenic shock (NCDR#9001) and "yes" (NCDR #9002) and the event date/time (NCDR # 9003) is documented as occurring after procedure end date/time (NCDR #7005).

Denominator*:* Total procedures

Example 1: case entered NCDR#9001 cardiogenic shock=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 10:20   Since the event is documented as occurring after procedure end, this outcome would be included in the numerator.

Example 2: case entered NCDR#9001 cardiogenic shock=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 11:45   Since the event is documented as occurring before procedure end, this outcome would not be included in the numerator.

When including timeframes Q1 2018 and prior:

Numerator: All procedures in which Cardiogenic Shock post procedure is documented as 'yes" in NCDR field # 8005, but "no" in BMC2 Outcomes in Lab.

Denominator: Total procedures

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Discharge to Hospice

Numerator: Number of discharges with discharge status of "Alive". (NCDR # 10105 "Discharge Status") **and** "Yes" (NCDR #10115 "If Alive, Hospice Care")

Denominator: Discharges

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR Sequence# 9040 discharge status= "Alive" and "Hospice" (NCDR #9045 Discharge Location)

Denominator: Discharges

All Deaths

Numerator: Number of discharges with discharge status of "Deceased". (NCDR # 10105)

Denominator: Discharges

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR Sequence# 9040 discharge status= "Deceased"

Denominator: Discharges

Death in Lab

Numerator: Number of discharges with death during procedure documented "yes" (NCDR#10120).

Denominator: All deaths

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges in which NCDR #9055 death in lab="yes"

Denominator: All deaths

Mortality Case Breakdown

Please note that more than one of the following fields could be applicable for a given discharge.

Example: A discharge could present as a STEMI , in cardiogenic shock, with a PCI status of salvage; this means the discharge would populate in all three line items.

*All indications for all procedures for patients that expired are included in this section. Because a procedure can have multiple indications (STEMI, cardiogenic shock, etc), and patients can have multiple procedures, these figures may not correlate with other line items of this report.

STEMI

Numerator: PCI indication =STEMI (NCDR # 7825 including Immediate PCI for Acute STEMI, PCI for STEMI (Unstable, >12 hrs from Sx onset),PCI for STEMI (Stable, >12 hrs from Sx onset), STEMI – Stable (<= 12 hrs from Sx), STEMI PCI for STEMI (Stable after successfullytics), Rescue PCI for STEMI (after unsuccessful lytics).

Denominator: All deaths

When including timeframes Q1 2018 and prior:

Numerator: NCDR field # 7035 PCI indication= Immediate PCI for STEMI, PCI for STEMI (Unstable, >12 hrs from Sx onset),PCI for STEMI (Stable, >12 hrs from Sx onset), PCI for STEMI (Stable after successful full-dose Thrombolysis), Rescue PCI for STEMI (after failed full-dose lytics).

Denominator: All deaths

NSTEMI/ACS

Numerator: Number of procedures with NCDR #7825 PCI Indication = "NSTE-ACS"

Denominator: All Deaths

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with NCDR v 4.4 #7035 PCI Indication="PCI for high risk Non-STEMI or unstable angina"

Denominator: All Deaths

**When comparing prior data and data from current version be mindful that the selections and coding instructions differ between V 4.4 and V5 which will alter numerical values.

Cardiovascular Instability at Start

Numerator: Number of procedures in which cardiovascular instability is documented at start of procedure (NCDR#7410="Yes")

Denominator: All Deaths.

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field.

Cardiogenic Shock

Numerator: Number of procedures in which cardiovascular instability is documented at start of procedure (NCDR#7410= "yes") **AND** cardiovascular instability type (NCDR #7410) is documented as "Cardiogenic Shock" or "Refractory Cardiogenic Shock"

Denominator: All Deaths

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedure in which NCDR v 4.4 #7030 Cardiogenic Shock at Start of PCI="yes"

Denominator: All Deaths

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Cardiac Arrest within 24 hours

Numerator: Number of discharges with BMC2 Patient History/Comorbidity Cardiac Arrest w/in 24 hrs ="Yes"

Denominator: All Deaths

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with BMC2 Patient History/Comorbidity Cardiac Arrest="Yes"

Denominator: All Deaths

**Although field names differ between BMC2 versions the coding instructions were the same. The name change was to provide a visual cue for abstractors to avoid confusion with the multiple NCDR arrest fields.

Elective

Numerator: Number of deaths with any procedure NCDR #7800 PCI status= "Elective"

Denominator: All Deaths

When including timeframes of Q1 2018 and prior:

Numerator: Number of discharges with any procedure NCDR v 4.4 #7020 PCI Procedure status="Elective"

Denominator: All Deaths

Salvage

Numerator: Number of deaths with any procedure NCDR #7800 PCI status= "Salvage"

Denominator: All Deaths

When including timeframes of Q1 2018 and prior:

Numerator: Number of discharges with any procedure NCDR v 4.4 #7020 PCI Procedure status="Salvage"

Denominator: All Deaths

Outcomes in Lab

Please note: Noticeable differences between total procedures and /or patients enrolled(discharges) and denominators noted for these line items may be related to matching NCDR and BMC2 records. See overview section of this document "BMC2 Record Matching Logic".

Coronary Perforation

Numerator: Number of procedures with perforation documented.(NCDR# 9145) "yes"

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with NCDR v 4.4 # 7250 perforation= "Yes" and/or BMC2 Outcome in lab perforation="Yes"

Denominator: Total procedures

*Please note the language "and/or" has been added as BMC2 stopped collecting perforation in February 2014 related to redundancy with NCDR field# 7250

Tamponade

Numerator: Number of procedures in which cardiac tamponade is documented "yes" (NCDR #9001) and the event date/time (NCDR # 9003) is documented as occurring before procedure end date/time (NCDR #7005).

Denominator: Total procedures

Example 1: case entered NCDR#9001 Cardiac Tamponade=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 12:03   Since the event is documented as occurring prior to procedure end, this outcome would be included in the numerator for tamponade.

Example 2: case entered NCDR#9001 Cardiac Tamponade=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 10:45   Since the event is documented as occurring after procedure end, this outcome would not be included in the numerator for tamponade.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which tamponade in lab is coded. Please note that in cases where BMC2 Outcome in lab tamponade="yes" and NCDR v 4.4 #8025 Intra and Post-Procedure Events Tamponade="Yes" is, this will be included as one instance of tamponade in lab.

Denominator: Total procedures

*When NCDR v 4.4 #8025 ="Yes" and BMC2 "Outcome in lab tamponade" = "No" is will be presumed that tamponade occurred post procedure and will not be included.

Stroke

Numerator: Number of procedures in which NCDR #9000 stroke (hemorrhagic, ischemic or undetermined)="Yes" and the NCDR #9003 event date/time=occurred before NCDR#7005 procedure end date/time

Denominator: Total procedures

Example 1: case entered NCDR#9001 stoke=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 12:03   Since the event is documented as occurring prior to procedure end, this outcome would be included in the numerator for stroke.

Example 2: case entered NCDR#9001 stroke=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 10:45   Since the event is documented as occurring after procedure end, this outcome would *not be* included in the numerator for stroke.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which BMC2 Outcomes in lab Stroke/TIA ="Yes".

Denominator: Total procedures.

Cardiogenic Shock

Numerator*:* Number of procedures in which NCDR #9001 cardiogenic shock="yes" and NCDR #9003 event date/time occurred prior to NCDR #7005 procedure end date/time (NCDR #7005).

Denominator: Total procedures

Example 1: case entered NCDR#9001 cardiogenic shock=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 12:03   Since the event is documented as occurring prior to procedure end, this outcome would be included in the numerator for cardiogenic shock.

Example 2: case entered NCDR#9001 cardiogenic shock=yes, NCDR #9003 =1/1/2019 11:00, NCDR #7005=1/1/2019 10:45   Since the event is documented as occurring after procedure end, this outcome would *not be* included in the numerator for cardiogenic shock.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which BMC2 Outcome in Lab Cardiogenic Shock in lab ="Yes". Please note that in cases where BMC2 "Outcome in lab Cardiogenic Shock"="Yes" and NCDR v 4.4 #8005 Intra and Post-Procedure Events- Cardiogenic Shock"="Yes" this will be included as one instance of cardiogenic shock in lab.

Denominator: Total procedures.

*If NCDR v 4.4 #8005="yes" and BMC2 Outcome in lab Cardiogenic Shock="No" it is presumed shock occurred post procedure and the instance would not be included.

Acute Closure

Numerator: Number of procedures with BMC2 Outcomes in Lab Acute Closure="Yes"

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with BMC2 Outcomes in Lab Acute Closure="Yes"

Denominator: Total procedures.

No Reflow

Numerator: Number of procedures in which BMC2 Outcomes in Lab No Reflow="Yes"

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which BMC2 Outcomes in Lab No Reflow="Yes"

Denominator: Total procedures

Side Branch Occlusion

Numerator: Number of procedures in which BMC2 Outcomes in Lab Side Branch Occlusion="Yes"

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures in which BMC2 Outcomes in Lab Side Branch Occlusion="Yes"

Denominator: Total procedures

Transfusion/Vascular Complication

Transfusion BMC2

Numerator: Number of procedures with NCDR #9275 transfusion of RBC transfusion="yes", **or** BMC2 outcomes post lab fresh frozen plasma, **or** platelets documented

Denominator: Total procedures.

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with BMC2 Outcomes Post Lab fresh frozen plasma, or platelets ="Yes" and/or NCDR v 4.4 #8040 intra and post procedure transfusion PRBC/Whole Blood="Yes"

Denominator: Total procedures.

*Please note that if more than one product is administered per discharge, the numerator would still reflect one instance

**When comparing prior data and data from current version be mindful that the selections are different between V 4.4 and V5 (timeframes and new selections Transfusion PCI, Transfusion Surgical are different) which may alter numerical values.

RBC Transfusion

Numerator: Number of procedures with NCDR #9275 transfusion of RBC transfusion ="yes"

Denominator: Total procedures

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedures with NCDR v 4.4 # 8040 transfusion PBCS/Whole Blood="Yes".

Denominator: Total procedures.

*Please note that if more than one unit is administered, the numerator would still reflect one instance

**When comparing prior data and data from current version be mindful that the selections are different between V 4.4 and V5 (timeframes and new selections Transfusion PCI, Transfusion Surgical are different) which may alter numerical values.

Primary Access Vascular Complication

Numerator: Number of procedures with BMC2 outcome post lab primary access site vasc comp documented as "yes".

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with BMC2 outcome post lab primary access site vasc comp ="Yes".

Denominator: Total procedures

*Please note this line item is based on BMC2 primary vascular access site data only.

Secondary Access Site Complication

Numerator: Number of procedures with BMC2 outcome post lab secondary access site vasc comp documented as "Yes".

Denominator: BMC2 Secondary Access Site "Yes".

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with BMC2 outcome post lab secondary access site vasc comp="Yes"

Denominator: BMC2 Secondary Access Site "Yes".

*Please note this line item is based on BMC2 primary and secondary vascular access site data only.

Transfusion in Vascular Complication

Numerator: Number of procedures with NCDR #9275 transfusion of RBC transfusion ="yes", **and/or** BMC2 outcomes post lab fresh frozen plasma, **or** platelets documented as "yes"

Denominator: Number of procedures with BMC2 outcome post lab primary access site vasc comp and/or secondary access site vasc comp="Yes".

When including timeframes of Q1 2018 and prior:

Numerator: Number of procedures with BMC2 outcome post lab primary access site vasc comp and/or secondary access site vasc comp ="Yes" and NCDR #8040 transfusion ofPRBC/Whole Blood="Yes" **and/or** BMC2 Outcomes post lab fresh frozen plasma, or platelets="Yes"

Denominator: Number of procedures with BMC2 outcomes post lab primary access site vasc comp and/or secondary access site vasc comp'Yes"

Medical Therapy

Aspirin within 24 hours

Numerator: number of procedures where aspirin was documented as "given" (BMC2 PCI Aspirin w/in 24 hours).

Denominator: total procedures.

Exclusion(s):

- Contraindicated to aspirin (BMC2 Medications)

When including timeframes Q1 2018 and prior:

Numerator: NCDR #9500=Aspirin and #9510 (Administered)=Yes

Denominator: total procedures.

Exclusion(s):

- NCDR#9510=Contraindicated
- NCDR#9510=Blinded

GP IIb/IIIa Inhibitors

Numerator: Number of procedures with BMC2 Medications Abciximab and/or Eptifibatide and/or Tirofiban="given"

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with BMC2 Medications Abciximab and/or Eptifibatide and/or Tirofiban="Given"

Denominator: Total procedures

GP IIb/IIIa Inhibitors Post

Numerator: Number of procedures with BMC2 Medications Abciximab and/or Eptifibatide and/or Tirofiban="given" and "Post"

Denominator: Number of procedures with BMC2 Medications Abciximab and/or Eptifibatide and/or Tirofiban="Given"

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with BMC2 Medications Abciximab and/or Eptifibatide and/or Tirofiban="Given" and "Post"

Denominator: Number of procedures with BMC2 Medications Abciximab and/or Eptifibatide and/or Tirofiban="Given"

Bivalirudin

Numerator: Number of procedures with BMC2 Medications bivalirudin="given"

Denominator: Total procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with BMC2 Medications bivalirudin="Given"

Denominator: Total procedures

Discharge Aspirin

Numerator: Number of discharges with NCDR #10200 Medication="Aspirin" and NCDR#10205="Yes"

OR

One, or more, medications from the following list per NCDR#10200= Category "Anti-coagulant" medications="Warfarin" and/or Category "Non Vitamin K Dependent Oral Anticoalgulant" medications ="Apixiban", "Dabigatran", "Edoxaban", "Rivaroxaban" and NCDR#10205="Yes" *AND (+)*

One medication from the following list per NCDR #10200= Category "P2Y12 Inhibitor"medications="Clopidogrel", Prasugrel", "Ticagrelor", Ticlopidine" and NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive"

The following Exclusions are applied if the numerator is not met:

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR#10030 Intervention this hospitalization= "Yes", *and* NCDR #10031 Type="CABG", "Cardiac not CABG", "Surgery not cardiac"
- NCDR #10075 Comfort Measures Only="Yes"

EXAMPLES:

In all of the following scenarios the discharge status is "Alive" and discharge location is "Home"

1. Discharge medications include Aspirin= Discharge Aspirin "Yes"
2. Disharge medications include Warfarin and Aspirin=Discharge Aspirin "Yes"
3. Discharge medications include Apixiban= Discharge Aspirin "No"
4. Disharge medications include Apixiban **and** Clopidogrel=Discharge Aspirin "Yes"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Aspirin" and NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)".
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"
- NCDR v 4.4 #9000 CABG="Yes"

*Not able to correlate with prior version r/t Non Vitamin K dependent oral anticoagulants and warfarin were not collected

Discharge Beta Blocker in ACS

Numerator:.Number of discharges with NCDR #10200 Medication="Beta Blocker" and NCDR#10205 Prescribed="Yes". If there is no documentation related to beta blocker in NCDR (field was entered after version underway), please utilize BMC2 Medications at Discharge section Beta Blocker. Use the following to assist with interpretation of BMC2 PCI fields compared to NCDR Cath PCI V5 field#10025 "Presc"="Yes", "Not Presc="No", "Contra=No-medical reason/No-patient reason".

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" *and* NCDR #7825 PCI indication = STEMI(any) or NSTE-ACS

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Beta Blocker" and NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive" and NCDR #7035 PCI indication="STEMI" (any) or "Non-STEMI/unstable angina"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"

*Please note that prior BMC2 PCI reports did contain information related beta blockers prescribed at discharge, the denominator is now different.

Discharge Beta Blocker EF<40%

Numerator: Number of discharges with NCDR #10200 Medication="Beta Blocker" *and* NCDR#10205 Prescribed="Yes". If there is no documentation related to beta blocker in NCDR (field was entered after version underway), please utilize BMC2 Medications at Discharge section Beta Blocker. Use the following to assist with interpretation of BMC2 PCI fields compared to NCDR Cath PCI V5 field#10025 "Presc"="Yes", "Not Presc="No", "Contra=No-medical reason/No-patient reason".

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" *and* BMC2 Discharge section LVEF Assessment this admit="Yes" if yes, "LVEF of <40% , if "no" then NCDR #7061 "LVEF during Dx LHC <40%", if "no" then NCDR #5111 "LVEF Assessed Pre-Procedure" <40%

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"

- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Beta Blocker" and NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive" and NCDR #9030 LVEF=<40%

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"
- NCDR v 4.4 #9031 LVEF not assessed=coded

*Please note that prior BMC2 PCI reports did contain information related beta blockers prescribed at discharge, the denominator is now different.

Disharge LLA

Numerator: Number of discharges with NCDR #10200 Medication="Statin" and/or "Non-Statin", and/or "PCSK9 Inhibitors (Alirocumab or Evolocumab)" ***and*** NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR #10105 discharge status= "Alive"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason" for all of the medication categories (statin, non-statin, PCSK9)
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Statin" and/or "Non-Statin" ***and*** NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)".
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased""

Discharge Statin

Numerator: Number of discharges with NCDR #10200 Medication="Statin" ***and*** NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Statin" ***and*** NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)".
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased""

Discharge ACE/ARB (EF <40%)

Numerator: Number of discharges with NCDR #10200 Medication="ACE Inhibitors" and/ or "ARB" ***and*** NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" **and** BMC2 Discharge section LVEF Assessment this admit="Yes" if yes, **and** "LVEF of <40% , if BMC2 LVEF Assessment this admit="no", then NCDR #5111 "LVEF Assessed Pre-Procedure"="Yes" **and** NCDR #5116 "If Yes, Most Recent LVEF"= <40%

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed =No medical reason/No-patient reason)
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10030 Intervention(s) this hospitalization="Yes" and NCDR #10031 Type="CABG"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="ACE Inhibitor" and/or "ARB"" and NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive" and NCDR #9030 LVEF=<40%

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"
- NCDR v 4.4 #9000 CABG="Yes"

Discharge ACE/ARB in DM HTN

Numerator: Number of discharges with NCDR #10200 Medication="ACE Inhibitors" and/ or "ARB" **and** NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" with NCDR #4615 HTN="Yes" **and** NCDR #4555 diabetes mellitus ="Yes"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10030 Intervention(s) this hospitalization="Yes" and NCDR #10031 Type="CABG"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="ACE Inhibitors" and/or "ARB" and NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"
- NCDR v 4.4 #9000 CABG="Yes"

Discharge P2Y12

Numerator: Number of discharges with NCDR #10200 Medication="P2Y12 Inhibitor (clopidogrel and/or prasugrel and/or ticagrelor and/or ticlopidine)" **and** NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" that have had *any* successful stent implantation (NCDR#8027/8028 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10030 Intervention(s) this hospitalization="Yes" and NCDR #10031 Type="CABG"
- Discharges with no successful lesions ("successful" = NCDR #8023 "yes" AND NCDR #8024 "yes")

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Thienopyridines (clopidogrel, prasugrel, ticagrelor, ticlopidine) " and NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"

- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"
- NCDR v 4.4 #9000 CABG="Yes"
- NCDR v 4.4 #7205 Guidewire Across Lesion "no" for ALL lesions in ALL procedures during the discharge being reported

*Stents not successfully deployed are not captured via the registry.

Discharge Non-Vitamin K Dependent Oral Anticoagulant

Numerator: Number of discharges with NCDR #10200 Medication="Non-Vitamin K Dependent Oral Anticoagulant (Apixiban, Dabigitran, Edoxaban, Rivaroxaban)" and NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR#10030 Intervention this hospitalization= "Yes", *and* NCDR #10031 Type="CABG" and/or "Cardiac not CABG" and/or "Surgery not cardiac"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field.

Discharge Warfarin

Numerator: Number of discharges with NCDR #10200 Medication=" Anticoagulant/Warfarin" and NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR#10030 Intervention this hospitalization= "Yes", *and* NCDR #10031 Type="CABG", "Cardiac not CABG", "Surgery not cardiac"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field.

Discharge Opioid

Numerator: Number of discharges with BMC2 Medications at discharge=opioid

Denominator: Discharges with NCDR ##10105 discharge status= "Alive"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field.

Discharge Prasugrel with Hx TIA/CVA

Numerator: Number of discharges with NCDR #10200 Medication="P2Y12 Inhibitor/Prasugrel*" and* NCDR#10205 Prescribed="Yes" who also have BMC2 History/Comorbidity TIA/CVA="Yes"

Denominator: Discharges with NCDR #10105 discharge status= "Alive" with NCDR #10200=P2Y12 Inhibitors/Prasugrel and NCDR #10205="Yes"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Thienopyridines /Prasugrel" and NCDR v 4.4 #9510 Administered (prescribed)="Yes" who also have(BMC2 Hx/comorbid TIA/CVA="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive" with NCDR v 4.4 #9505 "Thienopyridines/Prasugrel" and NCDR v 4.4 #9510=Yes"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"

*This information is provided as history of TIA/CVA is an absolute contraindication to the prescribing of Prasugrel.

Discharge Prasugrel <60Kg and/or age >75 yrs

Numerator: Number of discharges with NCDR #10200 Medication="P2Y12 Inhibitor/Prasugrel*" and* NCDR#10205 Prescribed="Yes" who also have NCDR #6005 Weight= <60Kg **and/or** NCDR #2050 Age= >75years

Denominator: Discharges with NCDR #10105 discharge status= "Alive" with NCDR #10200=P2Y12 Inhibitors/Prasugrel and NCDR #10205="Yes"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10105="Deceased"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Thienopyridines /Prasugrel" and NCDR v 4.4 #9510 Administered (prescribed)="Yes" who also have NCDR v 4.4 #4060 Weight= <60Kg **and/or** NCDR v 4.4 #2050 Age= >75years

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive" with NCDR v 4.4 #9505 "Thienopyridines/Prasugrel" and NCDR v 4.4 #9510=Yes"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"

*This information is provided as age >75 years and/or weight <60kg are relative contraindications to the prescribing of Prasugrel.

Discharge Anti-Platelet

Numerator: Number of discharges with NCDR #10200 Medication="P2Y12 Inhibitor (clopidogrel and/or prasugrel and/or ticagrelor and/or ticlopidine)" ***AND/OR*** NCDR #10200Medication="Aspirin" **and** NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" that have had *any* successful stent implantation (NCDR#8027/8028 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10205 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10030 Intervention(s) this hospitalization="Yes" and NCDR #10031 Type="CABG"
- No successful lesions (NCDR #8023="No" **OR** NCDR Sequence #8024="No")

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with stent implantation during this episode of care (NCDR v 4.4 #7225), prescribed P2Y12 **or** ASA at discharge. (NCDR v 4.4 # 9505/NCDR #9510 "Yes")

Denominator: Discharges with discharge status of alive that have any sucessful stent implanted during this episode of care (NCDR v 4.4 #7225)

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)".
- NCDR v 4.4 #9510 medications captured as "blinded"
- NCDR v 4.4 #9510 = "contraindicated"
- NCDR v 4.4 #9040 discharge status "deceased"
- NCDR v 4.4 #9000="yes"
- NCDR v 4.4 #7205 "no" /NCDR #7220 "no"=unsuccessful lesion
- NCDR v 4.4 #9015 CABG at your facility="yes"

*Devices not successfully deployed are not captured via the registry.

Discharge GLP-1

Numerator: Number of discharges with BMC2 Medications at Discharge="GLP-1 Inhibitors".

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" with NCDR #4555 diabetes mellitus ="Yes"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field.

Discharge SGLT2i w/DM

Numerator: Number of discharges with BMC2 Medications at Discharge="SGLT2 Inhibitors".

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" with NCDR #4555 diabetes mellitus ="Yes"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field.

SGLT2i LVEF <40%

Numerator: Number of discharges with BMC2 Medications at Discharge="SGLT2 Inhibitors".

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" *and* BMC2 Discharge section LVEF Assessment this admit="Yes" if yes, *and* "LVEF of <40% , if BMC2 LVEF Assessment this admit="no", then NCDR #5111 "LVEF Assessed Pre-Procedure"="Yes" *and* NCDR #5116 "If Yes, Most Recent LVEF"= <40%

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes of Q1 2018 and prior, please be aware there is no equivalent field.

PCI in Setting of STEMI

All STEMI

Numerator: Procedure with PCI indication =STEMI (NCDR # 7825) including: Immediate PCI for Acute STEMI, PCI for STEMI (Unstable, >12 hrs from Sx onset),PCI for STEMI (Stable, >12 hrs from Sx onset), STEMI – Stable (<= 12 hrs from Sx), STEMI PCI for STEMI (Stable after successful lytics), Rescue PCI for STEMI (after unsuccessful lytics).

Denominator: Total procedures

Example: Mr. Smith presents with Acute STEMI on 5/1/2019, he has PCI that day. The next day, 5/2/2019, he has another STEMI and has another PCI.

This scenario would be reflected on this report:

- "All STEMI"=2 instances
- "STEMI Discharges"=1 instance

When including timeframes Q1 2018 and prior:

Numerator: Procedure with NCDR Sequence#7035= Immediate PCI for STEMI, PCI for STEMi (unstable >12 hrs from Sx onset), PCI for STEMI (Stable>12 hrs Sx onset), PCI for STEMI (stable after successful full-dose thrombolysis), Rescue PCI for STEMI (after failed full-dose lytics).

Denominator: total procedures

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values. Please note there is one additional STEMI selection in v 5.0.

STEMI Discharges

Numerator: Discharges in which any PCI procedure occurring during that episode of care included a procedure with PCI Indication of any type of STEMI (NCDR # 7825)= Immediate PCI for Acute STEMI, PCI for STEMI (Unstable, >12 hrs from Sx onset),PCI for STEMI (Stable, >12 hrs from Sx onset), STEMI – Stable (<= 12 hrs from Sx), STEMI PCI for STEMI (Stable after successful lytics), Rescue PCI for STEMI (after unsuccessful lytics)

Denominator: All STEMI

Example: Mr. Smith presents with Acute STEMI on 5/1/2019, he has PCI that day. The next day, 5/2/2019, he has another STEMI and has another PCI.

This scenario would be reflected on this report:

- "All STEMI"=2 instances
- "STEMI Discharges"=1 instance

When including timeframes Q1 2018 and prior:

Numerator: Discharges in which any PCI procedure occurring during that episode of care included a procedure with PCI Indication of any type of STEMI NCDR Sequence#7035= Immediate PCI for STEMI, PCI for STEMi (unstable >12 hrs from Sx onset), PCI for STEMI (Stable>12 hrs Sx onset), PCI for STEMI (stable after successful full-dose thrombolysis), Rescue PCI for STEMI (after failed full-dose lytics).

Denominator: All STEMI

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values. Please note there is one additional STEMI selection in v 5.0.

All STEMI Discharged Alive

Numerator: Discharge status "Alive" (NCDR #10105)

Denominator: STEMI Discharges (NCDR # 7825)= Immediate PCI for Acute STEMI, PCI for STEMI (Unstable, >12 hrs from Sx onset),PCI for STEMI (Stable, >12 hrs from Sx onset), STEMI – Stable (<= 12 hrs from Sx), STEMI PCI for STEMI (Stable after successful lytics), Rescue PCI for STEMI (after unsuccessful lytics))

When including timeframes Q1 2018 and prior:

Numerator: Discharges with NCDR v 4.4 #9040="Alive"

Denominator: STEMI Discharges (NCDR v 4.4 # 7035)= Immediate PCI for STEMI, PCI for STEMI (Unstable, >12 hrs from Sx onset), PCI for STEMI (Stable, >12 hrs from Sx onset), STEMI PCI for STEMI (Stable after successful lytics), Rescue PCI for STEMI (after unsuccessful lytics))

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values. Please note there is one additional STEMI selection in v 5.0.

Total Acute STEMI

Numerator: Procedures with PCI indication of acute STEMI (NCDR # 7825= " Immediate PCI for Acute STEMI").

Denominator: All STEMI

When including timeframes Q1 2018 and prior:

Numerator: Procedures with NCDR v 4.4 #7035 PCI Indication="Immediate PCI for STEMI"

Denominator: All STEMI

Cardiogenic Shock

Numerator**:** Procedures in which "Cardiogenic Shock" and/or "Refractory Shock" is documented (NCDR #7415).
Denominator: All STEMI

When including timeframes of Q1 2018 and prior:

Numerator*:* Procedures with NCDR #7030="cardiogenic shock at start of PCI"

Denominator: All STEMI

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Drug Eluting Stents

Numerator: Number of drug eluting stents implanted. (NCDR Sequence # 8027/8028)

Denominator: All STEMI

When including timeframes of Q1 2018 and prior:
Numerator: Number of NCDR v 4.4 #7225="drug eluting stents" implanted.

Denominator: All STEMI

Thrombectomy

Numerator: NCDR #8027/8028="thrombectomy" and/or "extraction catheter"

Denominator: All STEMI

When including timeframes Q1 2018 and prior:

Numerator: NCDR v 4.4 #7225="thrombectomy" and/or "extraction catheter"

Denominator: All STEMI

*results will appear different than historical reports due to inclusion of extraction devices

Radial Access

Numerator*:* Procedures in which NCDR #7320= " radial"

Denominator: All STEMI

When including timeframes Q1 2018 and prior:

Numerator: Procedures with NCDR v 4.4 #5350="radial"

Denominator: All STEMI

GP IIb/IIIa Inhibitors

Numerator: Procedures with NCDR #'s 7990/7995 "PCI Medications" /GP IIb/IIIa Inhibitors ="Yes"

Denominator: All STEMI

When including timeframes Q1 2018 and prior:

Numerator: Procedures with NCDR v 4.4 #9500=GP IIb/IIIa (any) and #9510="yes"

Denominator: All STEMI

Aspirin within 24 hours

Numerator: Number of procedures where BMC2 PCI Aspirin w/in 24 hours= "given" .

Denominator: All STEMI

Exclusion(s):

- BMC2 PCI Aspirin w/in 24 hours= "contraindicated"

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures where NCDR #9500= "Aspirin" **and** #9510 "Yes"
Denominator: All STEMI

Exclusion(s):

- NCDR v 4.4 #9510="Blinded"
- NCDR v 4.4 #9510 ="Contraindicated"

Total Transferred STEMI

Numerator: Number of procedures where NCDR #7841 Transferred In For Immediate PCI for STEMI= "yes"

Denominator: Total Acute STEMI (NCDR#7825="Immediate PCI for Acute STEMI")

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures where NCDR v 4.4 #7055="Yes"

Denominator: Total Acute STEMI (NCDR#7035="Immediate PCI for STEMI")

Door to Door to Device (Median min)

Median calculation of door to door to balloon(device) times reported in minutes including all "Transferred In For Immediate PCI for STEMI" (NCDR #7841) that also have a PCI indication of "Immediate PCI for STEMI" documented (NCDR #7825).

Please note those discharges with STEMI noted per first ECG (NCDR #7835="First ECG") are calculated utilizing NCDR field#s: 7842 "Date & Time ED Presentation at Referring Facility", 3001 "Arrival Date/Time" and 7845 "First Device Activation Date & Time". (first device activation date & time-date and time ED presentation at referring facility)

Transfer STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

*Please note that procedures coded as having a "non-system delay" are **not excluded** from this calculation (NCDR # 7850)

When including timeframes Q1 2018 and prior:

Median calculation of door to balloon(device) times reported in minutes including NCDR v 4.4 #7055 Transferred in for Immediate PCI for STEMI"=No" **and** also have a NCDR v 4.4 #7035 PCI indication= "Immediate PCI for STEMI"

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 7050&7051-3000&3001(device date and time-arrival date and time). STEMI discharges with STEMI noted per subsequent ECG are calculate utilizing NCDR field#s:7050&7051-7045&7046 (device date and time-subsequent ECG date and time)

All Fields utilized in this calculation. (NCDR Sequence #'s:3010, 3000, 3001, 7035, 7040, 7045, 7046, 7050, 7051, 7055)

Transfer STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

*Please note that procedures coded as having a "non-system delay" are not excluded from this calculation (NCDR # 7065)

Door to Door to Device <=120 mins

Numerator: Number of procedures with door to door to device time less than or equal to 120 minutes.

Denominator: NCDR #7841 Transferred In For Immediate PCI for STEMI="yes" **and** NCDR #7825 PCI indication="Immediate PCI for Acute STEMI"

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 7842 "Date & Time ED Presentation at Referring Facility", 3001 "Arrival Date/Time" and 7845 "First Device Activation Date & Time".

Transfer STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

*Please note that procedures coded as having a "non-system delay" are **not excluded** from this calculation (NCDR # 7850)

When including timeframes Q1 2018 and prior:

Numerator: Number of procdures with door to door to device time less than or equal 120 minutes

Denominator: NCDR v 4.4 #7055 Transferred in for Immedicat PCI for STEMI="Yes" **and** NCDR v 4.4 7035 PCI indication="Immediate PCI for STEMI"

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 7050&7051-3000&3001(device date and time-arrival date and time). STEMI discharges with STEMI noted per subsequent ECG are calculate utilizing NCDR field#s:7050&7051-7045&7046 (device date and time-subsequent ECG date and time)

All Fields utilized in this calculation. (NCDR Sequence #'s:3010, 3000, 3001, 7035, 7040, 7045, 7046, 7050, 7051)

Transfer STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

*Please note that procedures coded as having a "non-system delay" are not excluded from this calculation (NCDR # 7065)

Non-transfer STEMI

Numerator: Number of discharges with NCDR #7841 "Transferred In For Immediate PCI for STEMI"= "no"

Denominator: Total Acute STEMI (NCDR#7825="Immediate PCI for Acute STEMI")

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures where NCDR v 4.4 #7055="No"

Denominator: Total Acute STEMI (NCDR#7035="Immediate PCI for STEMI")

Door to Device (median mins)

Median calculation of door to device (aka D2B) times reported in minutes including all "Transferred In For Immediate PCI for STEMI"="no" (NCDR #7841) and NCDR #7825= PCI indication of "Immediate PCI for Acute STEMI"

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 3001 "Arrival Date/Time" and 7845 "First Device Activation Date & Time" (first device Activation date & time-arrival date and time).

STEMI discharges with STEMI noted per subsequent ECG (NCDR#7835 ="Subsequent ECG") are calculated utilizing NCDR field#s:7836-"If Subsequent ECG, ECG with STEMI/STEMI Equivalent Date & Time" and 7845-"First Device Activation Date & Time" (device date and time-subsequent ECG date and time)

Direct admit STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

*Please note that procedures coded as having a "non-system delay" are **not excluded** from this calculation (NCDR # 7850)

When including timeframes Q1 2018 and prior:

Median calculation of door to balloon(device) times reported in minutes including NCDR v 4.4 #7055 Transferred in for Immediate PCI for STEMI" ="No" **and** NCDR v 4.4 #7035 PCI indication = "Immediate PCI for STEMI"

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 7050&7051-3000&3001(device date and time-arrival date and time). STEMI discharges with STEMI noted per subsequent ECG are calculate utilizing NCDR field#s:7050&7051-7045&7046 (device date and time-subsequent ECG date and time)

All Fields utilized in this calculation. (NCDR v 4.4 Sequence #'s:3010, 3000, 3001, 7035, 7040, 7045, 7046, 7050, 7051, 7055)

 STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

*Please note that procedures coded as having a "non-system delay" are not excluded from this calculation (NCDR # 7065)

Door to Device (<=90 mins)

Numerator: Number of procedures with door to device time less than or equal to 90 minutes.

Denominator: Acute PCI patients "Transferred In For Immediate PCI for STEMI"=No" (NCDR #7841) that also have a PCI indication of "Immediate PCI for Acute STEMI" documented (NCDR #7825).

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 3001 "Arrival Date/Time" and 7845 "First Device Activation Date & Time" (first device Activation date & time-arrival date and time).

STEMI discharges with STEMI noted per subsequent ECG (NCDR#7835 ="Subsequent ECG") are calculated utilizing NCDR field#s:7836-"If Subsequent ECG, ECG with STEMI/STEMI Equivalent Date & Time" and 7845-"First Device Activation Date & Time" (device date and time-subsequent ECG date and time)

 Direct admit STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

*Please note that procedures coded as having a "non-system delay" are **not excluded** from this calculation (NCDR # 7850)

When including timeframes Q1 2018 and prior:

Numerator: Number of procdures with door to door to device time less than or equal 90 minutes

Denominator: NCDR v 4.4 #7055 "Transferred in for Immediate PCI for STEMI="No" **and** NCDR v 4.4 7035 PCI indication="Immediate PCI for STEMI"

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 7050&7051-3000&3001(device date and time-arrival date and time). STEMI discharges with STEMI noted per subsequent ECG are calculate utilizing NCDR field#s:7050&7051-7045&7046 (device date and time-subsequent ECG date and time)

All Fields utilized in this calculation. (NCDR v 4.4 Sequence #'s:3010, 3000, 3001, 7035, 7040, 7045, 7046, 7050, 7051, 7055)

Transfer STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

Door to Device (>120 mins)

Numerator: Number of procedures with door to device time greater than 120 minutes.

Denominator: Acute PCI patients "Transferred In For Immediate PCI for STEMI"**=No**" (NCDR #7841) that also have a PCI indication of "Immediate PCI for Acute STEMI" documented (NCDR #7825).

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 3001 "Arrival Date/Time" and 7845 "First Device Activation Date & Time" (first device Activation date & time-arrival date and time).

STEMI discharges with STEMI noted per subsequent ECG (NCDR#7835 ="Subsequent ECG") are calculated utilizing NCDR field#s:7836-"If Subsequent ECG, ECG with STEMI/STEMI Equivalent Date & Time" and 7845-"First Device Activation Date & Time" (device date and time-subsequent ECG date and time)

Direct admit STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

*Please note that procedures coded as having a "non-system delay" are **not excluded** from this calculation (NCDR # 7850)

When including timeframes Q1 2018 and prior:

Numerator: Number of procdures with door to door to device time greater than120 minutes

Denominator: NCDR v 4.4 #7055 "Transferred in for Immediate PCI for STEMI="No" **and** NCDR v 4.4 7035 PCI indication="Immediate PCI for STEMI"

Please note those discharges with STEMI noted per first ECG are calculated utilizing NCDR field#s: 7050&7051-3000&3001(device date and time-arrival date and time). STEMI discharges with STEMI noted per subsequent ECG are calculate utilizing NCDR field#s:7050&7051-7045&7046 (device date and time-subsequent ECG date and time)

All Fields utilized in this calculation. (NCDR v 4.4 Sequence #'s:3010, 3000, 3001, 7035, 7040, 7045, 7046, 7050, 7051, 7055)

Transfer STEMI procedures with information necessary to perform calculation are included. Procedures lacking the necessary information are excluded.

STEMI Discharge Medications

Aspirin

Numerator: Number of discharges prescribed aspirin at adischarge NCDR#10200="Aspirin", NCDR #10205="Yes"

Denominator: All STEMI discharges

Exclusion(s):

- Discharge status of "Deceased"
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed aspirin at discharge NCDR v 4.4 # 9505="Aspirin and NCDR v 4.4 #9510="Yes"

Denominator: All STEMI discharges

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

P2Y12 Inhibitors

Numerator: Number of discharges with stent implantation during this episode of care who are prescribed P2Y12 inhibitor at discharge (clopidogrel, prasugrel, ticagrelor, ticlopidine). (NCDR #10200="P2Y12" and NCDR #10205="Yes")

Denominator*:* All STEMI discharges that have had any successful stent implantation (NCDR#7225 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- Discharges with no successful lesions ("no successful" = NCDR #8023 "no" or NCDR #8024 "no") during this episode of care
- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)
- Discharge status="Deceased"

*Stents not successfully deployed are not captured via the registry.

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed P2Y12 (at discharge NCDR v 4.4 # 9505="Thienopyridines" and NCDR v 4.4 #9510="Yes"

Denominator: All STEMI Discharges that have had any successful stent implantation (NCDR#7225 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

Clopidogrel

Numerator: Number of discharges with stent implantation during this episode of care who are prescribed clopidogrel (NCDR#10200="Clopidogrel and NCDR #10205="Yes")

Denominator: All STEMI discharges with any successful stent implantation (NCDR#7225 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- Discharges with no successful lesions ("successful" = NCDR #8023 "no" or NCDR #8024 "no") during this episode of care
- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)
- Discharge status (NCDR#10105)="Deceased"

*Stents not successfully deployed are not captured via the registry.

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed Clopidogrel (at discharge NCDR v 4.4 # 9505="Clopidogrel" and NCDR v 4.4 #9510="Yes"

Denominator: All STEMI Discharges that have had any successful stent implantation (NCDR#7225 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

Prasugrel

Numerator: Number of discharges with stent implantation during this episode of care who are prescribed Prasugrel at discharge (NCDR #10200="Prasugrel" and NCDR #10205="Yes")

Denominator*:* All STEMI discharges that have had any successful stent implantation (NCDR#7225 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- Discharges with no successful lesions ("no successful" = NCDR #8023 "no" or NCDR #8024 "no") during this episode of care

- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)
- Discharge status="Deceased"

*Stents not successfully deployed are not captured via the registry.

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed Prasugrel (at discharge NCDR v 4.4 # 9505="Prasugrel" and NCDR v 4.4 #9510="Yes"

Denominator: All STEMI Discharges that have had any successful stent implantation (NCDR#7225 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

Ticagrelor

Numerator: Number of discharges with stent implantation during this episode of care who are prescribed Ticagrelor (NCDR#10200="Ticagrelor" and NCDR #10205="Yes")

Denominator: All STEMI discharges with any successful stent implantation (NCDR#7225 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- Discharges with no successful lesions ("successful" = NCDR #8023 "no" or NCDR #8024 "no") during this episode of care
- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)
- Discharge status (NCDR#10105)="Deceased"

*Stents not successfully deployed are not captured via the registry.

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed Ticagrelor (at discharge NCDR v 4.4 # 9505="Ticagrelor" and NCDR v 4.4 #9510="Yes"

Denominator: All STEMI Discharges that have had any successful stent implantation (NCDR#7225 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

Beta Blocker

Numerator: Number of discharges prescribed beta blocker at discharge NCDR#10200="beta blocker", NCDR #10205="Yes". If there is no documentation related to beta blocker in NCDR (field was entered after version underway), please utilize BMC2 Medications at Discharge section Beta Blocker. Use the following to assist with interpretation of BMC2 PCI fields compared to NCDR Cath PCI V5 field#10025 "Presc"="Yes", "Not Presc="No", "Contra=No-medical reason/No-patient reason".

Denominator: All STEMI discharges

Exclusion(s):

- Discharge status of "Deceased"
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed beta blocker at discharge NCDR v 4.4 # 9505="beta blocker" and NCDR v 4.4 #9510="Yes"

Denominator: All STEMI Discharges

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

ACE with LVEF <40%

Numerator: Number of discharges prescribed ACE at discharge (NCDR #10205)

Denominator: All STEMI Discharges with LVEF of <40% (BMC2 "LVEF Assessment this admit", if "no" then NCDR #7061 "LVEF during Dx LHC", if "no" then NCDR #5111 "LVEF Assessed Pre-Procedure") without documented contraindication (NCDR #10205=No-medical reason/No-patient reason).

Exclusion(s):

- Discharge status (NCDR #10105)="Deceased"
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)
- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed ACEat discharge. (NCDR v 4.4 #9505="ACE Inhibitor" and NCDR v 4.4 #9510="Yes")

Denominator: Discharges with ejection fraction <40% and discharge status of alive without documented contraindication. (NCDR Sequence # 9040 and #9510)

Exclusion(s):

- NCDR v 4.4 #9040 Dicharge Status=" Deceased"
- NCDR v 4.4 #9045 Discharge Location=Other acute care hospital, Hospice, Left against medical advice (AMA).
- NCDR v 4.4 #9510="contraindicated" or "blinded"

ACE/ARB with LVEF <40%

Numerator: Number of discharges prescribed ACE or ARB at discharge (NCDR #10200="ACE Inhibitors" or "ARB" and NCDR #10205="Yes")

Denominator: All STEMI Discharges with LVEF of <40% (BMC2 "LVEF Assessment this admit", if "no" then NCDR #7061 "LVEF during Dx LHC", if "no" then NCDR #5111 "LVEF Assessed Pre-Procedure")

Exclusion(s):

- Discharge status (NCDR #10105)="Deceased"
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)
- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected
- BMC2 LVEF Assessment this admit, NCDR #7061, and NCDR #5111 are all entered as "No"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed ACE inhibitor and/or ARB at discharge. (NCDR v 4.4 #9505="ACE Inhibitor"and/or "ARB" and NCDR v 4.4 #9510="Yes")

Denominator: Discharges with ejection fraction <40% (NCDR v 4.4 #9030 Discharge EF, if "no", then NCDR v 4.4 #7025 Pre-PCI LVEF)

- NCDR v 4.4 #9040 Dicharge Status=" Deceased"
- NCDR v 4.4 #9045 Discharge Location=Other acute care hospital, Hospice, Left against medical advice (AMA).
- NCDR v 4.4 #9510="contraindicated" or "blinded"
- NCDR v 4.4 #9030 Discharge EF and #7025 Pre-PCI LVEF are both entered as "No"

Lipid Lowering Agents

Numerator: Number of discharges prescribed lipid lowering agent (LLA) at discharge NCDR#10200="Statin" and/or "Non-Statin", and NCDR #10205="Yes" (for any of the LLA)

Denominator: All STEMI discharges

Exclusion(s):

- Discharge status of "Deceased"
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed lipid lowering agent (LLA) at discharge NCDR v 4.4 # 9505="Statin" and/or "Non-Statin " and NCDR v 4.4 #9510="Yes" (for either of the LLA)

Denominator: All STEMI Discharges

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

Statin

Numerator: Number of discharges prescribed statin at discharge NCDR#10200="Statin" and NCDR #10205="Yes"

Denominator: All STEMI discharges

Exclusion(s):

- Discharge status of "Deceased"
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribed statin at discharge NCDR v 4.4 # 9505="Statin" and NCDR v 4.4 #9510="Yes"

Denominator: All STEMI Discharges

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

Non-statin (any)

Numerator: Number of discharges prescribed non-statin at discharge NCDR#10200="Non-Statin", and NCDR #10205="Yes"

Denominator: All STEMI discharges

Exclusion(s):

- Discharge status of "Deceased"
- Discharge location (NCDR#10110 and #10115): other acute care hospital, Left against medical advice (AMA), Hospice.
- Documented contraindication to this medication (NCDR #10025=No medical reason/No-patient reason)
- Comfort Measures Only="Yes" (NCDR #10075)

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges prescribednon-statin at discharge NCDR v 4.4 # 9505="Non-Statin " and NCDR v 4.4 #9510="Yes"

Denominator: All STEMI Discharges

Exclusion(s):

- NCDR v 4.4 #9040 Disharge Status "Deceased"
- NCDR v 4.4 9045 Discharge locations= other acute care hospital, Hospice, Left against medical advice (AMA)
- NCDR v 4.4 #9510="contraindicated" or "blinded"

STEMI Outcomes

In Stent Thrombosis

Numerator: Previously treated lesion (NCDR#8008)="yes", Date (NCDR#8009) =same as other procedure during this admission/episode of care and In-stent Thrombosis (NCDR#8012)="yes"

Denominator: All STEMI

Example:

1. Mr. Heart has PCI for STEMI on 5/1/2018 leaves lab at 15:00. He returns 5/2/2018 at 00:45 with CP, he requires PCI with noted in-stent thrombosis, this is treated with PCI and he is discharged on 5/5/2018. This case **would** be included in this report line item.

2. Mrs. Heart has PCI for STEMI on 5/1/2018 leaves lab at 17:08. She is discharged to home on 5/3/2018 and returns to the cath lab from the ED on 5/9/2018, she has PCI with noted in stent thrombosis which is treated with PCI. She is discharged s/p second PCI on 5/12/2018.   This case **would not** be included in this report line item.

*When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field "Previously Treated Date" was not available on prior version.

CIN

Numerator: Number of procedures with calculated difference between pre and post procedure creatinine of ≥0.5 mg/dl (post-pre= ≥0.5 mg/dl). (NCDR Sequence #'s:8510, 6050). In cases where no post creatinine is entered, but a discharge creatinine value is entered (NCDR#10060), the discharge value will be utilized for this calculation.

Denominator: All STEMI procedures

Exclusion(s):

- Procedures with missing creatinine values(NCDR #s 8510 or 6050)
- Documented death in lab (NCDR#10120)
- Currently on Dialysis (NCDR Sequence # 4560)

Example: Pre Cr. 2.0mg/dl, Post Cr. 2.5mg/dl=CIN

Example: Pre Cr. 2.0mg/dl, Post Cr. not entered, Discharge Cr 2.5mg/dl=CIN

Example: Pre Cr. 2.0mg/dl, Post Cr. 2.3mg/dl, Discharge Cr. 2.7mg/dl= No CIN (post value supercedes discharge value)

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures with calculated difference between pre and post procedure creatinine of at least 0.5 mg/dl (post-pre>=0.5 mg/dl). (NCDR v 4.4 #'s: 7315, 7341)

Denominator:All STEMI Procedures

Exclusion(s):

- NCDR v 4.4 #7315/7340 creatinine values missing
- NCDR v 4.4 #9055 death in lab="yes"
- NCDR v 4.4 #4065 dialysis="yes"

**When comparing prior data and data from current version be mindful that the fields utilized on prior reports may have been different between V 4.4 and V5 which will alter numerical values. Beginning with Q1 2015 PCI reports, sites entering creatinine in BMC2, had CIN calculated using ONLY the BMC2 creatinine values. BMC2 values were entered utilizing the entire Creatinine value as entered. When NCDR creatinines are utilized we must expect different results as values entered into CathPCI were truncated and that coding instructions related to rounding varied throughout V 4.4 .

Bleeding

Numerator: procedures with documented bleeding event (NCDR #9001). Includes: "Bleeding-Access Site", "Bleeding-Gastrointestinal", "Bleeding-Genitourinary", " "Bleeding-Hematoma at Access Site", "Bleeding-Other", "Bleeding-Retroperitoneal", "Cardiac Tamponade", Stroke-Hemorrhagic".

Denominator: All STEMI procedures

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for this field coding instructions are much different between V 5.0 and V 4.4

Major Bleeding

Numerator: procedures with decrease in Hgb >=5gm/dl (NCDR#6030 (Pre Hgb)-NCDR #8505 (Nadir Hgb with 72 hrs post procedure)).

Denominator: All STEMI procedures

When including timeframes Q1 2018 and prior:

Numerator: Procedures with decrease from NCDR v 4.4 # 7320 Pre Procedure Hgb to NCDR v 4.4 #7345 Post Procedure Hgb is >=5gm/dl.

Denominator: All STEMI procedures

Stroke

Numerator: Number of procedures in which stroke (hemorrhagic, ischemic, undetermined)is documented "yes" (NCDR #9001).

Denominator: Total STEMI procedures

When including timeframes Q1 2018 and prior:

Numerator: Number of procedures where NCDR v 4.4 #8015 intra and post procedure stroke ="yes"

Denominator: Total STEMI procedures

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Mortality

Numerator: Number of discharges with NCDR #10105="Deceased"

Denominator: All STEMI discharges

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR Sequence# 9040 discharge status= "Deceased"

Denominator: All STEMI discharges

Key Indicators of Performance

Measures that are currently be focused on.

CV/eGFR ≥ 3 (Goal < 20%)

Numerator: Number of procedures noted to have ratio of contrast dose (Contrast Volume/GFR) with results ≥ 3. (NCDR Sequence #'s: 2050, 2060, 2070-93, 6005, 6050, 7215).

Denominator: Total procedures.
Exclusion(s):

- Procedures lacking information in data fields used to calculate this field
- Patients currently on dialysis (#4560)

Example:

Contrast Volume 150, eGFR 50, calculated as 150/50=3.0 THIS VALUE WOULD PLACE THIS CASE IN THE ≥ 3 LINE.

When including timeframes Q1 2018 and prior:
Numerator: Number of procedures noted to have ratio of contrast dose (Contrast Volume/GFR) with results ≥ 3. (NCDR V 4.4 Sequence #'s: 2050, 2060, 2070-76, 4060, 7315-16, 5325).

Denominator: Total procedures with exclusion of procedures lacking information in data fields used to calculate this field, as well as patients currently on dialysis (NCDR v 4.4 #4065). Including DOB, race, sex, weight, serum creatinine, and contrast volume.

Excludes:

- patients on dialysis (NCDR#4065).

Values are not rounded.

Cardiac Rehab Referral (Goal > 90%)

Numerator: Number of discharges with NCDR Sequence # 10116cardiac rehabilitation referral="Yes"

Denominator: Discharges with any successfully treated lesion (NCDR #8024 Device deployed) with discharge status "Alive" (NCDR #10105) and discharge location (NCDR #10110) marked as "Home".

Exclusions:

- Discharges with no successful lesions ("successful" = NCDR #8023 "yes" AND NCDR #8024 "yes")
- Intervention this hospitalization (NCDR#10030) "yes", with Type=CABG (NCDR #10031) selected
- Discharges with the following discharge locations (NCDR #10110 and #10115) : Skilled Nursing facility, Extended care/TCU/rehab, Other, Other acute care hospital, Left against medical advice, Hospice.
- Comfort Measures Only="Yes" (NCDR #10075)
- Discharges with the following rationale for lack of cardiac rehabilitation referral (NCDR #10116): No-Medical Reason Documented, No-Health Care System Reason Documented.

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 Sequence # 9050 cardiac rehabilitation referral="Yes"

Denominator: Discharges with NCDR v 4.4 #9040 Discharge status="Alive" with NCDR v 4.4 # 9045 discharge location marked as "Home".

Exclusions: :

- NCDR v 4.4 #7205 Guidewire Across Lesion= "no" for ALL lesions in ALL procedures during the discharge being reported
- NCDR v 4.4 #9000 CABG= "yes"
- NCDR v 4.4 # 9050 Cardiac Rehabilitation referral= "inelegible"
- NCDR v 4.4 #9045 Discharge location="patients transferred to another acute care facility"" hospice", 'who left against medical advice (AMA)",' extended care/TCU/rehab'," nursing home", or "other"

*Data entry selections are different from V 4.4 to V 5.0, this will affect numerical values

Pre or Post IV Hydration (Goal ≥96%)

Numerator: Number of procedures noted to have BMC2 Hydration-Intravenous fluid administered= pre and/or post PCI

Denominator: Total procedures.

Exclusion(s):

- Currently on Dialysis=yes (NCDR #4560)
- Cardiac Arrest Out of Healthcare Facility=yes (NCDR #4630)
- Cardiac Arrest at Transferring Healthcare facility=yes (NCDR #4635)
- Cardiac Arrest at this facility=yes (NCDR #7340)
- Cardiovascular instability=yes (NCDR #7410)
- PCI status=salvage (NCDR #7800)

- Heart Failure=yes (NCDR #4001) with NYHA=II, III, IV (NCDR #4011)

*Please note that discharges with Heart Failure=yes and NYHA=I are included.

When including timeframes Q1 2018 and prior:

Numerator: Procedures with pre and/or post hydration of any duration documented in the BMC2 Medications/Saline section="given" and any timeframe="pre" and/or "post"

Denominator: Total procedures.

Exclusion(s):

- NCDR v 4.4 #4065 Dialysis="yes" (was excluded on prior reports)
- BMC2 Patient History/Comorbidity Cardiac Arrest within 24 hours="yes" (not excluded on prior reports/not an exact match with version 5.0 field)
- NCDR v 4.4 #7020 PCI Status="salvage" (not excluded on prior reports)
- NCDR v 4.4 #5040 Heart Failure w/in 2 weeks="yes" **and** NCDR v 4.4 #5045 NYHA=II, III, IV (not excluded on prior reports)
- NCDR v 4.4 #5060 Cardiogenic Shock w/in 24 hours="yes" (not excluded on prior reports/not an exact match with version 5.0 field)

**When comparing prior data and data from current version be mindful that the selections are much different between V 4.4 and V5 which will alter numerical values.

Pre-hydration(volume/≥3ML/Kg) eGFR <60

Numerator: Number of procedures noted to have BMC2 Hydration-Intravenous and/or Oral Pre fluid volume/≥3ml/kg (BMC2 PCI Hydration Intravenous Given="Yes" and/or BMC2 PCI Hydration Oral Given="Yes" and number of ml's entered divided by weight entered in "kg" (NCDR#6005) =≥3ml) Formula: PO+IV hydration/Kg=Xml

Denominator: Total number of procedures where patient is noted to have eGFR < 60.

Exclusion(s):

- Currently on Dialysis (NCDR Sequence # 4560)
- Cardiac Arrest Out of Healthcare Facility=yes (NCDR #4630)
- Cardiac Arrest at Transferring Healthcare facility=yes (NCDR #4635)
- Cardiac Arrest at this facility=yes (NCDR #7340)
- Cardiovascular instability=yes (NCDR #7410)
- PCI status=salvage (NCDR #7800)
- Cardiac Arrest within 24 hours (BMC2 Pt Hx and Comorbidity)
- Symptomatic Heart Failure=yes (NCDR #4001) with NYHA=II, III, IV (NCDR #4011)
- PCI Indication= STEMI – Immediate PCI for Acute STEMI (NCDR #7825)

*Please note: eGFR is calculated by using the CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration) formula via the QxMD calculator found here http://www.qxmd.com/calculate-online/nephrology/ckd-epi-egfr . Fields utilized for this calculation are: Creatinine, Age, Sex, & Race.

About this GFR calculator

The CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration) equation was developed in an effort to create a formula more precise than the MDRD formula, especially when actual GFR is > 60 mL/min per 1.73 m^2. Researchers pooled data from multiple studies to develop and validate this new equation. They randomly divided 10 studies which included 8,254 participants, into separate data sets for development and internal validation. 16 additional studies, which included 3,896 participants, were used for external validation. The CKD-EPI equation performed better than the MDRD (Modification of Diet in Renal Disease Study) equation, especially at higher GFR, with less bias and greater accuracy. When looking at NHANES (National Health and Nutrition Examination Survey) data, the median estimated GFR was 94.5 mL/min per 1.73 m^2 vs. 85.0 mL/min per 1.73 m^2, and the prevalence of chronic kidney disease was 11.5% versus 13.1%. The CKD-EPI equation, expressed as a single equation, is:

GFR = 141 X min(Scr/κ,1)$^{\alpha}$ X max(Scr/κ,1)$^{-1.209}$ X 0.993^{Age} X 1.018 [if female] X 1.159 [if black]

Where Scr is serum creatinine (mg/dL), κ is 0.7 for females and 0.9 for males, α is –0.329 for females and –0.411 for males, min indicates the minimum of Scr/κ or 1, and max indicates the maximum of Scr/κ or 1.

Citations

Levey AS, Stevens LA, Schmid CH, Zhang YL, Castro AF 3rd, Feldman HI, Kusek JW, Eggers P, Van Lente F, Greene T, Coresh J; CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration). A New Equation to Estimate Glomerular Filtration Rate. *Ann Intern Med* 150(9):604-12. (2009)

Discharge ACE/ARB (EF <40%) (Goal ≥98%)

Numerator: Number of discharges with NCDR #10200 Medication="ACE Inhibitors" and/ or "ARB" **and** NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" **and** BMC2 Discharge section LVEF Assessment this admit="Yes" if yes, "LVEF of <40% , if "no" then NCDR #7061 "LVEF during Dx LHC <40%", if "no" then NCDR #5111 "LVEF Assessed Pre-Procedure" <40%

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10025 Prescribed =No medical reason/No-patient reason)
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10030 Intervention(s) this hospitalization="Yes" and NCDR #10031 Type="CABG"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="ACE Inhibitor" and/or "ARB"" and NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive" and NCDR #9030 LVEF=<40%

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"
- NCDR v 4.4 #9000 CABG="Yes"

Discharge Beta Blocker EF<40% (Goal ≥98%)

Numerator: Number of discharges with NCDR #10200 Medication="Beta Blocker" **and** NCDR#10205 Prescribed="Yes". If there is no documentation related to beta blocker in NCDR (field was entered after version underway), please utilize BMC2 Medications at Discharge section Beta Blocker. Use the following to assist with interpretation of BMC2 PCI fields compared to NCDR Cath PCI V5 field#10025 "Presc"="Yes", "Not Presc"="No", "Contra=No-medical reason/No-patient reason".

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" **and** BMC2 Discharge section LVEF Assessment this admit="Yes" if yes, "LVEF of <40% , if "no" then NCDR #7061 "LVEF during Dx LHC <40%", if "no" then NCDR #5111 "LVEF Assessed Pre-Procedure" <40%

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10025 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Beta Blocker" and NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive" and NCDR #9030 LVEF=<40%

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased"
- NCDR v 4.4 #9031 LVEF not assessed=coded

*Please note that prior BMC2 PCI reports did contain information related beta blockers prescribed at discharge, the denominator is now different.

Anti-Platelet Therapy (Goal ≥98%)

Numerator: Number of discharges with NCDR #10200 Medication="P2Y12 Inhibitor (clopidogrel and/or prasugrel and/or ticagrelor and/or ticlopidine)" ***AND/OR*** NCDR #10200Medication="Aspirin" **and** NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" that have had <u>any</u> successful stent implantation (NCDR#8027/8028 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10025 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10030 Intervention(s) this hospitalization="Yes" and NCDR #10031 Type="CABG"
- No successful lesions (NCDR #8023="No" **OR** NCDR Sequence #8024="No")

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with stent implantation during this episode of care (NCDR v 4.4 #7225), prescribed P2Y12 **or** ASA at discharge. (NCDR v 4.4 # 9505/NCDR #9510 "Yes")

Denominator: Discharges with discharge status of alive that have any sucessful stent implanted during this episode of care (NCDR v 4.4 #7225)

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)".
- NCDR v 4.4 #9510 medications captured as "blinded"

- NCDR v 4.4 #9510 = "contraindicated"
- NCDR v 4.4 #9040 discharge status "deceased"
- NCDR v 4.4 #9000="yes"
- NCDR v 4.4 #7205 "no" /NCDR #7220 "no"=unsuccessful lesion
- NCDR v 4.4 #9015 CABG at your facility="yes"

*Devices not successfully deployed are not captured via the registry.

Discharge LLA (Goal ≥98%)

Numerator: Number of discharges with NCDR #10200 Medication="Statin" and/or "Non-Statin", and/or "PCSK9 Inhibitors" *and* NCDR#10205 Prescribed="Yes"

Denominator: Discharges with NCDR #10105 discharge status= "Alive"

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10025 Prescribed ="No medical reason" or "No-patient reason" for all of the medication categories (statin, non-statin, PCSK9)
- NCDR #10075 Comfort Measures Only="Yes"

When including timeframes Q1 2018 and prior:

Numerator: Number of discharges with NCDR v 4.4 #9505 Medication="Statin" and/or "Non-Statin" *and* NCDR v 4.4 #9510 Administered (prescribed)="Yes"

Denominator: Discharges where NCDR v 4.4 #9040 Discharge Status="Alive"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)".
- NCDR v 4.4 #9510 Administerd= "Blinded"
- NCDR v 4.4 #9510 Administered= "Contraindicated"
- NCDR v 4.4 #9040 Discharge status "Deceased""

Peak Intra-Procedure ACT Recorded (Goal ≥90%)

Numerator: Number of PCI procedures in which the Peak Activated Clotting Time (ACT) was recorded (BMC2 Procedure Information-Intraprocedure ACT="yes").

Denominator: Total number of PCI procedures which unfractionated heparin was administered (NCDR #7990)="Unfractionated Heparin" and #7995="yes"

Exclusion(s):

- Procedures with bivalirudin administered (NCDR #7990="Bivalirudin" and #7995="yes")

When including timeframes Q1 2018 and prior:

Numerator: Number of PCI procedures in which the Peak Activated Clotting Time (ACT) was recorded (BMC2 Procedure Information-Intraprocedure ACT)
Denominator: Total number of PCI procedures which unfractionated heparin was administered (NCDR v 4.4 #9510 Procedure Medications Unfractionated Heparin (any)="yes")).

Exclusion(s):

- Procedures with bivalirudin administered (NCDR v. 4.4 #9510 Procedure Medications Bivalirudin="yes")

Peak ACT >= 350 Heparin Only

Numerator: Number of procedures with peak intra procedure >=350 seconds (BMC2 Procedure Information/Intra-procedure ACT ="yes").

Denominator: Procedures with unfractionated heparin administered(NCDR #7990="unfractionated heparin" and #7995="Yes")

Exclusion(s):

- Procedures with no peak ACT calculation entered in BMC2 (BMC2 Procedure Information-Intraprocedure ACT="Not documented" or value is missing)
- Procedures with glycoprotein IIb/IIIa inhibitors administered (BMC2 Medications Abciximab (Reopro), or Eptifibatide (Integrillin), or Tirofiban (Aggrastat) ="Given" **and** "During")
- Procedures with bivalirudin administered (NCDR #7990=Bivalirudin" and #7995="Yes")
- Procedures with BMC2 Outcomes in Lab "Rescue IIb/IIIa"="Yes"
- Procedures with Chronic Total Occlusion lesion (NCDR #8004="100%" and NCDR#8005="Yes")

When including timeframes Q1 2018 and prior:

Numerator: Number of PCI procedures in which the Peak Activated Clotting Time (ACT)>=350 (BMC2 Procedure Information-Intraprocedure ACT)

Denominator: Total number of PCI procedures which unfractionated heparin was administered (NCDR v 4.4 #9510 Procedure Medications Unfractionated Heparin (any)="yes")).

Exclusion(s):

- Procedures with no peak ACT value entered into BMC2 (BMC2 Procedure Information-Intraprocedure ACT="Not documented" or value is missing)
- Procedures with bivalirudin administered (NCDR v. 4.4 #9510 Procedure Medications Bivalirudin="Yes")
- Procedures with glycoprotein IIb/IIIa inhibitors administered (NCDR v. 4.4 #9510 Procedure Medications GP IIb/IIIa="Yes")

Air Kerma ≥5Gy (Goal<1%, or >=50% reduction prior year)

Number of cases in which Air Kerma dose entered is ≥5Gy (NCDR#7210).

Smoking Cessation (Goal ≥ 95%)

Numerator: Discharges with BMC2 Counsel Smoking Cessation="Yes"

Denominator: Discharges with tobacco use (NCDR #4625) =Current-Every Day, Current-Some Days with discharge status "Alive" (NCDR #10105) and discharge location (NCDR# 10110) marked as "Home", .

Exclusion(s):

- NCDR#10110 Discharge location=" other acute care hospital", " Left against medical advice (AMA)", "Skilled Nursing facility", "Extended care/TCU/rehab"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10105 Discharge Status="Deceased"

When including timeframes Q1 2018 and prior:

Numerator: Discharges with documented smoking cessation counseling via BMC2 (Discharge Education) Smoking cessation counsel="Yes".

Denominator: Discharges with NCDR v 4.4 #9040 dischargestatus=" Alive" **and** NCDR v 4.4 #4000 Current Smoker="Yes"

Exclusion(s):

- NCDR v 4.4 #9045 Discharge Location="Other acute care hospital", "Hospice", "Left against medical advice (AMA)"
- NCDR v 4.4 #9040 discharge status "deceased"

P2Y12 Duration Documented (Goal ≥70%)

Numerator: Number of discharges with BMC2 PCI "P2Y12 Duration"="Yes"

Denominator: Discharges with NCDR ##10105 discharge status= "Alive" that have had *any* successful stent implantation (NCDR#8027/8028 (Drug eluting stents, bare metal stents, covered stents or coated stents)) during this episode of care

Exclusion(s):

- NCDR#10110 Discharge location="Other acute care hospital"," Left against medical advice (AMA)"
- NCDR#10115 Hospice Care="Yes"
- NCDR #10025 Prescribed ="No medical reason" or "No-patient reason"
- NCDR #10075 Comfort Measures Only="Yes"
- NCDR #10030 Intervention(s) this hospitalization="Yes" and NCDR #10031 Type="CABG"
- Discharges with no successful lesions ("successful" = NCDR #8023 "yes" AND NCDR #8024 "yes")

Major Bleeding (Goal ≤ 0.85%)

Numerator: Procedures with decrease from NCDR#6030 Pre Procedure Hgb to NCDR #8505 Post Procedure Hgb is >=5gm/dl

Denominator: All procedures

Exclusion(s):

- NCDR#7422="Yes" **AND** NCDR #7423="Extracorporeal Membrane Oxygenation (ECMO)" or "Combined Extracorporeal Membrane Oxygenation and Percuraneous Left Ventricular Assist Device (ECPELLA)
- NCDR#10030="Yes"

When including timeframes Q1 2018 and prior, please be aware there is no equivalent for some fields utilized for this measure.

Goals/Graphs

CIN	Goal: <=3.0%
NRD	Goal: <0.4%
CV/eGFR	Goal: <=20%
Cardiac Rehab Referral	Goal: >=90%
Air Kerma >=5Gy	Goal: <=1%
Peak Intra-Procedure ACT Recorded	Goal: >=90%
Peak ACT >= 350 Heparin Only	Goal: <=15%
Pre-hydration(vol/Kg/≥3ML)eGFR <60	Goal: >=50%
P2Y12 Duration Documented	Goal: >=70%
Major Bleeding	Goal: <=0.85%

Risk Adjusted Models-variables utilized and methods overview
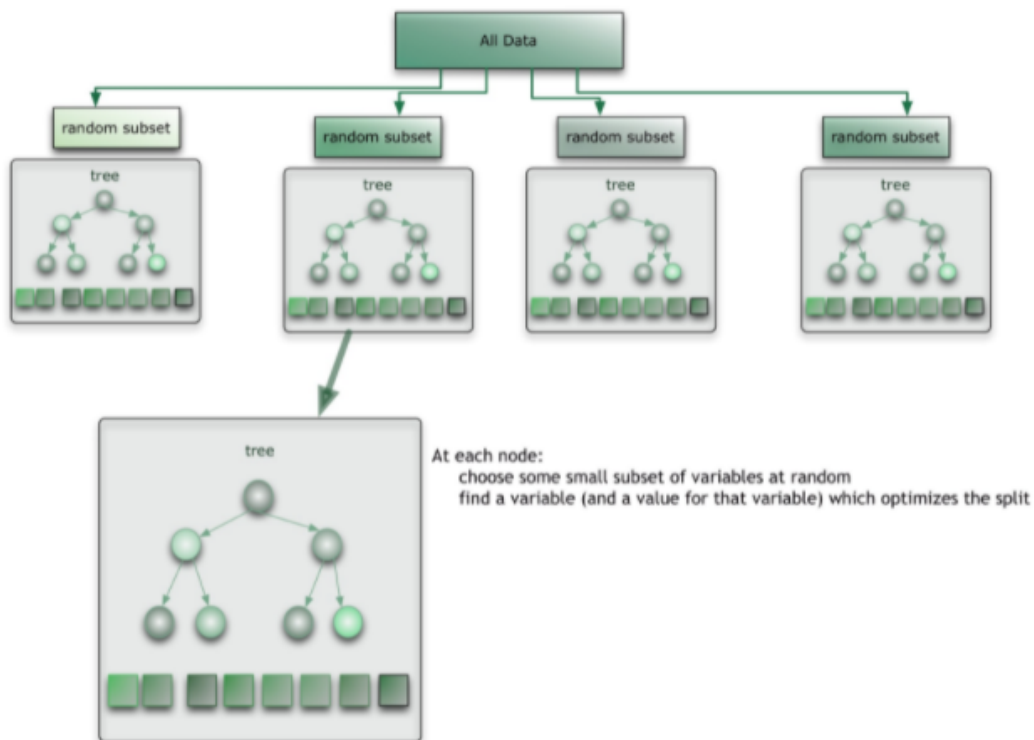
Random Forest classifier:

Machine learning method Developed by Leo Breiman and Adele Cutler.

Ensemble of many decision trees.

Each tree is built on a random sample of observations (bagging).

At each node, a randomly chosen subset of features is evaluated to determine which factor (and at what cut-point for continuous variables) to split on.

All trees are grown out fully until ending in a pure node (all events or all non-events) or until the minimum node size is reached.

At each node:
  choose some small subset of variables at random
  find a variable (and a value for that variable) which optimizes the split

For each hospital, we use our risk models to calculate the mean patient risk level for all the patients (regardless of outcome) treated at that hospital - the "estimated" risk "E"

The ratio of the observed outcome rate among patients at the hospital "O" to the estimated rate "E" is then used to produce a "risk adjusted outcome rate" for the facility by multiplying the O/E ratio by the overall outcome rate in the collaborative:

Risk adjusted rate = O/E * overall rate

Variables used in risk adjustment models

Age	Height	Weight	Tobacco use
Canadian Study of Health and Aging Clinical Frailty Scale (CSHA)	Preprocedural Vasopressor use	PCI Indication and PCI status	Cardiac arrest, and level of consciousness recorded if arrest (Alert, Pain, Verbal, Unresponsive, Unable to assess,no Arrest)
Creatinine	Troponin (I and T)	NYHA class	Dominance in coronary anatomy (Left, Right, Co-dominant)
LVEF (either from diagnostic left heart cath or most recent available)	Hemoglobin	Systolic BP	Diagnostic angiography results from most recent procedure
Total cholesterol	HDL cholesterol	Patient centered reason for delay in care and recorded reason (Difficult Vascular access, Difficulty crossing culprit lesion, Cardiac arrest	

Outliers

The purpose is to find the standard error of this indicator at this site. If the mean value for the indicator falls within the 95% confidence interval, then this indicator is not an outlier. If the mean value falls below the 95% confidence interval, this indicator is a negative outlier, and vice versa.

We calculate the standard error by assuming that this indicator has a Poisson distribution with parameter λ = the benchmark noted on the BMC2 EPCI Report. Thus, the standard error can be estimated by $\sqrt{\sigma}n$, where σ is the standard deviation and n is the total number of discharges at the site. Since σ = $\sqrt{\lambda}$ for a poisson distribution, that means the standard error is q∧n .

Please refer to your report for examples.

Morbidity and Mortality Listing

Morbidity and Mortality on BMC2 PCI Reports:

- Death
- Cardiogenic Shock (post)
- Stroke/TIA (during or post)
- CIN
- NRD
- Transfusion
- Vascular Complication (BMC2 Primary Access Site)
- Vascular Complication (BMC2 Secondary Access Site)
- Trans in Vascular Comp
- VT/VF req therapy
- Acute Closure
- Coronary Perforation
- Bleeding
- Major Bleeding
- Arrest Intra/Post
- Tamponade Intra/Post
- Heart Failure Intra/Post
- Chronic Total Occlusion

MMQI Listing

- Death
- Cardiogenic Shock (post)
- All CABG (emergent or discharge)-EPCI not included
- CABG (emergent)-EPCI not included
- Stroke/TIA (during or post)
- CIN
- NRD
- Transfusion
- Vascular Comp (BMC2 primary site)
- Vascular Comp (BMC2 secondary site)
- Trans in Vascular Comp
- VT/VF req therapy
- Acute Closure
- Coronary Perforation
- Multi-vessel intervention
- Left main involved-
- Prasugrel with Hx TIA/CVA
- Prasugrel <60 Kg and/or >75yrs
- DTB > 120
- EF < 40, ACE/ARB not given at discharge
- LLA(s) not given at discharge
- ASA not given pre-procedure
- Statin at discharge
- CV/eGFR>=3
- AK≥5Gy
- Pre/post hydration not given
- Surgical consult not performed
- Bleeding
- Major Bleeding
- Cardiac Rehab Referral not provided at discharge
- ACE/ARB with DM & HTN not prescribed at discharge
- BB with EF<40% not prescribed at discharge
- No anti-platelet prescribed at discharge
- Smoking Cessation Counseling not performed
- Arrest Intra/Post
- Tamponade Intra/Post
- Heart Failure Intra/Post
- Intra-procedure ACT not drawn
- ACT >=350 seconds Heparin only cases
- ACT>=300 seconds Heparin+GPI
- Pre-hydration(vol/Kg/>=3ML)
- Pre-hydration(vol/Kg/>=3ML)eGFR>60
- No reflow
- P2Y12 Duration Documented