## **Supplementary Online Content**

Guduguntla V, Syrjamaki JD, Ellimoottil C, et al. Drivers of payment variation in 90-day coronary artery bypass grafting episodes. *JAMA Surg*. Published online August 23, 2017. doi:10.1001/jamasurg.2017.2881

## eAppendix. CABG Episode Definition

This supplementary material has been provided by the authors to give readers additional information about their work.

## eAppendix. CABG Episode Definition

Rule Type	Descriptor	Code Type	Number / Range	Full Description*
Inclusion	Inpatient	POS Codes	1	Inpatient
Inclusion	Operations On The Cardiovascular System	ICD_9_Proc_Codes	36.1	Aortocoronary bypass for heart revascularization, not otherwise specified
Inclusion		ICD_9_Proc_Codes	36.11	(Aorto)coronary bypass of one coronary artery
Inclusion		ICD_9_Proc_Codes	36.12	(Aorto)coronary bypass of two coronary arteries
Inclusion		ICD_9_Proc_Codes	36.13	(Aorto)coronary bypass of three coronary arteries
Inclusion		ICD_9_Proc_Codes	36.14	(Aorto)coronary bypass of four or more coronary arteries
Inclusion		ICD_9_Proc_Codes	36.15	Single internal mammary-coronary artery bypass
Inclusion		ICD_9_Proc_Codes	36.16	Double internal mammary-coronary artery bypass
Inclusion		ICD_9_Proc_Codes	36.17	Abdominal- coronary artery bypass
Inclusion		ICD_9_Proc_Codes	36.19	Other bypass anastomosis for heart revascularization
Inclusion		ICD_9_Proc_Codes	36.2	Heart revascularization by arterial implant
Inclusion	Surgery: Cardiovascular System	CPT Codes	33510—33516	Coronary artery bypass, vein only; single coronary venous graft

Inclusion		CPT Codes	33533—33536	Coronary artery bypass, using arterial graft(s); single arterial graft
Exclusion	Diseases Of The Circulatory System	ICD_9_DX_Codes	410	Acute myocardial infarction of anterolateral wall, episode of care unspecified
Exclusion		ICD_9_DX_Codes	410.01	Acute myocardial infarction of anterolateral wall, initial episode of care
Exclusion		ICD_9_DX_Codes	410.1	Acute myocardial infarction of other anterior wall, episode of care unspecified
Exclusion		ICD_9_DX_Codes	410.11	Acute myocardial infarction of other anterior wall, initial episode of care

Exclusion	ICD_9_DX_Codes	410.2	Acute
			myocardial
			infarction of
			inferolateral
			wall, episode of
			care unspecified
Exclusion	ICD_9_DX_Codes	410.21	Acute
			myocardial
			infarction of
			inferolateral
			wall, initial
			episode of care
Exclusion	ICD_9_DX_Codes	410.3	Acute
			myocardial
			infarction of
			inferoposterior
			wall, episode of
			care unspecified
Exclusion	ICD_9_DX_Codes	410.31	Acute
			myocardial
			infarction of
			inferoposterior
			wall, initial
			episode of care
Exclusion	ICD_9_DX_Codes	410.4	Acute
			myocardial
			infarction of
			other inferior
			wall, episode of
			care unspecified
Exclusion	ICD_9_DX_Codes	410.41	Acute
			myocardial
			infarction of
			other inferior
			wall, initial
			episode of care
Exclusion	ICD_9_DX_Codes	410.5	Acute
			myocardial
			infarction of
			other lateral
			wall, episode of
			care unspecified
Exclusion	ICD_9_DX_Codes	410.51	Acute
			myocardial
			infarction of
			other lateral

			wall, initial
			episode of care
Exclusion	ICD_9_DX_Codes	410.6	True posterior
			wall infarction,
			episode of care
			unspecified
Exclusion	ICD_9_DX_Codes	410.61	True posterior
			wall infarction,
			initial episode
			of care
Exclusion	ICD_9_DX_Codes	410.7	Subendocardial
			infarction,
			episode of care
			unspecified
Exclusion	ICD_9_DX_Codes	410.71	Subendocardial
			infarction,
			initial episode
			of care
Exclusion	ICD_9_DX_Codes	410.8	Acute
			myocardial
			infarction of
			other specified
			sites, episode of
			care unspecified
Exclusion	ICD_9_DX_Codes	410.81	Acute
			myocardial
			infarction of
			other specified
			sites, initial
			episode of care

Exclusion  Operations On The Cardiovascular System  Exclusion  ICD_9_Proc_Codes   410.91   Acute myocardial infarction of unspecified site, episode of care unspecified infarction of unspecified site, initial episode of care  Exclusion  Exclusion  ICD_9_Proc_Codes   35.00—35.28   Closed heart valvotomy, unspecified valve  Exclusion  ICD_9_Proc_Codes   35.31—35.42   Operations on papillary muscle septal defect of heart with prosthesis  Exclusion  ICD_9_Proc_Codes   35.50—35.84   Repair of unspecified septal defect of heart with prosthesis  Exclusion   ICD_9_Proc_Codes   35.91—35.99   Interatrial transposition of venous return	Exclusion		ICD 0 DV Codes	410.9	Acute
Exclusion  Operations On The Cardiovascular System  ICD_9_Proc_Codes  Exclusion  ICD_9_Proc_Codes  ICD	Exclusion		ICD_9_DA_Codes	410.9	
Exclusion    CD_9_DX_Codes   410.91   Acute myocardial infarction of unspecified site, episode of care unspecified   CD_9_DX_Codes   410.91   Acute myocardial infarction of unspecified site, initial episode of care   Exclusion   Operations On The Cardiovascular System   ICD_9_Proc_Codes   35.00—35.28   Closed heart valvotomy, unspecified valve					
Exclusion    CD_9_DX_Codes   410.91   Acute myocardial infarction of unspecified site, initial episode of care   Cardiovascular System   ICD_9_Proc_Codes   35.00—35.28   Closed heart valvotomy, unspecified valve					
Exclusion    ICD_9_DX_Codes   410.91   Acute myocardial infarction of unspecified site, initial episode of care					
ExclusionICD_9_DX_Codes410.91Acute myocardial infarction of unspecified site, initial episode of careExclusionOperations On The Cardiovascular SystemICD_9_Proc_Codes System35.00—35.28Closed heart valvotomy, unspecified valveExclusionICD_9_Proc_Codes35.31—35.42Operations on papillary muscleExclusionICD_9_Proc_Codes35.50—35.84Repair of unspecified septal defect of heart with prosthesisExclusionICD_9_Proc_Codes35.91—35.99Interatrial transposition of venous return					_
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Exclusion Operations On The Cardiovascular System  ICD_9_Proc_Codes 35.00—35.28 Closed heart valvotomy, unspecified valve  Exclusion ICD_9_Proc_Codes 35.31—35.42 Operations on papillary muscle  Exclusion ICD_9_Proc_Codes 35.50—35.84 Repair of unspecified septal defect of heart with prosthesis  Exclusion ICD_9_Proc_Codes 35.91—35.99 Interatrial transposition of venous return					-
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Exclusion  ICD_9_Proc_Codes   35.50—35.84   Repair of unspecified septal defect of heart with prosthesis    Exclusion   ICD_9_Proc_Codes   35.91—35.99   Interatrial transposition of venous return		System			
Exclusion  ICD_9_Proc_Codes 35.50—35.84 Repair of unspecified septal defect of heart with prosthesis  Exclusion  ICD_9_Proc_Codes 35.91—35.99 Interatrial transposition of venous return	Exclusion		ICD_9_Proc_Codes	35.31—35.42	
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transposition of venous return					•
venous return	Exclusion		ICD_9_Proc_Codes	35.91—35.99	
					-
Exclusion ICD 9 Proc Codes 37.51 Heart					
	Exclusion		ICD_9_Proc_Codes	37.51	Heart
transplantation					
<b>Exclusion</b> Surgery: CPT Codes 33400—33478 Valvuloplasty,	Exclusion		CPT Codes	33400—33478	
Cardiovascular aortic valve;					· ·
System open, with		System			open, with
cardiopulmonary					cardiopulmonary
bypass					bypass
<b>Exclusion</b> CPT Codes 33400—33417 Valvuloplasty,	Exclusion		CPT Codes	33400—33417	
aortic valve;					· · · · · · · · · · · · · · · · · · ·
open, with					open, with
cardiopulmonary					cardiopulmonary
bypass					V 1
Exclusion CPT Codes 33420—33430 Valvotomy,	Exclusion		CPT Codes	33420—33430	Valvotomy,
mitral valve;					
closed heart		1			alacad bacut

Exclusion		CPT Codes	33460—33478	Valvectomy,
				tricuspid valve,
				with
				cardiopulmonary
				bypass
Exclusion		CPT Codes	33600—33853	Closure of
				atrioventricular
				valve (mitral or
				tricuspid) by
				suture or patch
Exclusion		CPT Codes	33935	Heart-lung
				transplant with
				recipient
				cardiectomy-
				pneumonectomy
Exclusion		CPT Codes	33945	Heart transplant,
				with or without
				recipient
				cardiectomy
Risk Adjustor	Surgery:	CPT Codes	33530	Reoperation,
	Cardiovascular			coronary artery
	System			bypass
				procedure or
				valve procedure,
				more than 1
				month after
				original
				operation (List
				separately in
				addition to code
				for primary
		GDT G 1	22.22	procedure)
Risk Adjustor		CPT Codes	33533—33536	Coronary artery
				bypass, using
				arterial graft(s);
				single arterial
				graft

<sup>\*</sup> If a code range is listed, the description refers to the first code in the series.