**Supplementary Material 1.** Surgical Procedure CCS and ICD-9-CM Codes

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| **Procedure group** | **CCS** | **ICD-9-CM codes** |
| Heart valve procedures | 43 | 3500 3501 3502 3503 3504 3505 3506 3507 3508 3509 3510 3511 3512 3513 3514 3520 3521 3522 3523 3524 3525 3526 3527 3528 3596 3597 3599 |
| Coronary artery bypass graft (CABG) | 44 | 3610 3611 3612 3613 3614 3615 3616 3617 3619 362 363 3631 3632 3633 3634 3639 |
| Insertion; revision; replacement; removal of cardiac pacemaker or cardioverter/defibrillator | 48 | 0050 0051 0052 0053 0054 0056 0057 1751 1752 3770 3771 3772 3773 3774 3775 3776 3777 3778 3779 3780 3781 3782 3783 3785 3786 3787 3789 3794 3795 3796 3797 3798 |
| Other OR heart procedures | 49 | 3531 3532 3533 3534 3535 3539 3541 3542 3550 3551 3552 3553 3554 3555 3560 3561 3562 3563 3570 3571 3572 3573 3581 3582 3583 3584 3591 3592 3593 3594 3595 3598 3600 3603 3609 3691 3699 3710 3711 3712 3731 3732 3733 3734 3735 3736 3737 374 3741 3749 3752 3753 3754 3755 3760 3761 3762 3763 3764 3765 3766 3767 3768 3790 3791 3799 |
| Extracorporeal circulation auxiliary to open heart procedures | 50 | 3961 3962 3963 3964 3965 3966 |