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# Development of the ICD-10 Procedure Coding System (ICD-10-PCS)

Richard F. Averill, M.S., Robert L. Mullin, M.D., Barbara A. Steinbeck, RHIT, Norbert I. Goldfield, M.D.,  
Thelma M. Grant, RHIA, Rhonda R. Butler, CCS, CCS-P

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*The International Classification of Diseases 10th Revision Procedure Classification System (ICD-10-PCS) has been developed as a replacement for Volume 3 of the International Classification of Diseases 9th Revision (ICD-9-CM). The development of ICD-10-PCS was funded by the U.S. Centers for Medicare and Medicaid Services (CMS). ICD-10-PCS has a multi-axial seven character alphanumeric code structure that provides a unique code for all substantially different procedures, and allows new procedures to be easily incorporated as new codes. ICD-10-PCS was under development for over five years. The initial draft was formally tested and evaluated by an independent contractor; the final version was released in the Spring of 1998, with annual updates since the final release. The design, development and testing of ICD-10-PCS are discussed.*

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The ICD-10-PCS is being developed with the support of the Centers for Medicare and Medicaid Services, under contract Nos. 90-1138, 91-22300 500-95-0005 and HHSM-500-2004-00011C to 3M Health Information Systems. Consultation in the development of ICD-10-PCS was provided by Donn G. Duncan, M.D. and Gerard M. Doherty, M.D. The coding staff of the Division of Acute Care, Hospital and Ambulatory Policy Group, Center for Medicare Management of the Centers for Medicare and Medicaid Services, DHHS, provided ongoing review and evaluation during the development of the ICD-10-PCS: Patricia E. Brooks, Ann Bowling Fagan, Amy L. Gruber. A wide range of physician specialty societies, individual clinicians, health care professionals and researchers provided valuable input into the research. The Tables, List of Codes, and Index are computer generated, based on an expert system designed by Yvette Wang, Laurence Gregg, Enes Elia, and David Gannon. Address correspondence and requests for reprints to Richard F. Averill, Director, Clinical Research Department, 3M Health Information Systems, 100 Barnes Road, Wallingford, CT 06492. Robert L. Mullin, M.D., Barbara A. Steinbeck, RHIT, Norbert I. Goldfield, M.D., Thelma M. Grant, RHIA, Rhonda R. Butler, CCS, CCS-P, are with 3M Health Information Systems, 3M Health Care. The opinions expressed are solely those of the authors and do not necessarily reflect the views or policy positions of 3M Health Information Systems or the Centers for Medicare and Medicaid Services.

## Introduction

Volume 3 of the *International Classification of Diseases 9th Revision Clinical Modification (ICD-9-CM)* has been used in the U.S. for the reporting of inpatient procedures since 1979. The structure of Volume 3 of ICD-9-CM has not allowed new procedures associated with rapidly changing technology to be effectively incorporated as new codes. As a result, in 1992 the U.S. Centers for Medicare and Medicaid Services (CMS) funded a project to design a replacement for Volume 3 of ICD-9-CM. After a review of the preliminary design, CMS in 1995 awarded 3M Health Information Systems a three-year contract to complete development of the replacement system. The new system is the ICD-10 Procedure Coding System (ICD-10-PCS).

The development of ICD-10-PCS had as its goal the incorporation of four major attributes:

### *Completeness*

There should be a unique code for all substantially different procedures. In Volume 3 of ICD-9-CM, procedures on different body parts, with different approaches, or of different types are sometimes assigned to the same code.

### *Expandability*

As new procedures are developed, the structure of ICD-10-PCS should allow them to be easily incorporated as unique codes.





















































NCVHS Characteristics	ICD-9-CM	ICD-10-PCS
<b>Hierarchical structure</b>		
Ability to aggregate data from individual codes into larger categories	The ability to aggregate by body system is provided but there is no ability to aggregate by other components of a procedure	The ability to aggregate across all essential components of a procedure is provided
Each code has a unique definition forever - not reused	Some codes do not have a unique definition because the codes have been reused	All codes have a unique definition
<b>Expandibility</b>		
Flexibility to new procedures and technologies ("empty" code numbers)	Minimal flexibility New procedures and technologies are difficult to incorporate. Virtually no empty code numbers	Extensive flexibility New procedures and technologies are easily incorporated. Unlimited empty code values available
Mechanism for periodic updating	Updated annually through Coordination and Maintenance Committee	Update process needs to be established. If ICD-10-PCS replaces ICD-9-CM, Coordination and Maintenance Committee would be responsible for update process
Code expansion must not disrupt systematic code structure	Code expansions are difficult to incorporate without disrupting systematic code structure	Code expansions do not disrupt systematic structure
<b>Comprehensive</b>		
Provides NOS and NEC categories so that all possible procedures can be classified somewhere	Extensive use of NOS and NEC categories. All procedures can be categorized somewhere. Broad NOS and NEC categories result in procedure codes which are ambiguously defined	Limited use of NOS and NEC categories. NEC and NOS categories are specific to each axis of code. All procedures can be categorized somewhere. Procedure codes are precisely defined even when NOS and NEC options are used
Includes all types of procedures	All types of procedures are included although there is minimal detail for many types of procedure	All types of procedures are included except evaluation and management procedures. Complete detail is provided for all types of procedures
Applicability to all setting and types of providers	All settings and types of providers are covered although there is minimal detail for many settings and types of providers	All settings and types of providers are covered except physician office services for evaluation and management. Complete detail is provided for all settings and types of providers
<b>Non-Overlapping</b>		
Each procedure (or component of a procedure) is assigned to only one code	The same procedure when performed for different diagnoses is sometimes assigned to multiple codes	Each procedure is assigned to only one code
<b>Ease of Use</b>		

Table 11: Comparison of ICD-9-CM and ICD-10-PCS Using the NCVHS Characteristics

NCVHS Characteristics	ICD-9-CM	ICD-10-PCS
Standardization of definitions and terminology	No standard definitions provided. Terminology is inconsistent across codes	All terminology is precisely defined. All terminology is used constantly across all codes
Adequate indexing and annotation for all users	Full index but specificity of index varies across codes	Full index. Index is computer generated so specificity of index is consistent across codes
<b>Setting and Provider Neutrality</b>		
Same code regardless of who or where procedure is performed	Codes are independent of who or where procedure is performed	Codes are independent of who or where procedure is performed
<b>Multiaxial</b>		
Body system(s) affected	Body system affected can be determined from code number	A specific character in the code specifies the body system affected
Technology used	Limited and inconsistent specification of technology used	Technology used is specified in the approach character of the code
Techniques/approaches used	Limited and inconsistent specification of techniques/approaches used	The techniques/approaches used are specified in the approach character of the code
Physiological effect or pharmacological properties	Limited and inconsistent specification of physiological effect and pharmacological properties	Physiological effect and pharmacological properties are specified when relevant to the procedure
Characteristics/composition of implant	Limited an inconsistent specification of characteristics/composition of implant	The characteristics/composition of implants are specified in the device character of the code
<b>Limited to Classification of Procedures</b>		
Should not include diagnostic information	Diagnostic information is included for some codes	No diagnostic information is included in the code
Other data elements (such as age) should be elsewhere in the record	No other data elements included in code	No other data elements included in code

**Table 11: Comparison of ICD-9-CM and ICD-10-PCS Using the NCVHS Characteristics (Continued)**









## APPENDIX B

## Comparison of Medical and Surgical Root Operations

Operation	Action	Target	Clarification	Example
<b>Procedures that take out or eliminate all or a portion of a body part:</b>				
Excision	Cutting out or off	Portion of a body part	Without replacing body part	Sigmoid polypectomy
Resection	Cutting out or off	All of a body part	Without replacing body part	Total nephrectomy
Extraction	Pulling out or off by physical force	All or a portion of a body part	Without replacing body part	Toenail extraction
Destruction	Eradicating	All or a portion of a body part	Without taking out or replacing body part	Rectal polyp fulguration
Detachment	Cutting off	All or a portion of an extremity	Without replacing extremity	Below knee amputation
<b>Procedures that involve putting in or on, putting back, or moving living body parts:</b>				
Transplantation	Putting in or on	All or a portion of a living body part from other individual or animal	Physically takes the place and/or function of all or a portion of a body part	Heart transplant
Reattachment	Putting back in or on	All or a portion of a separated body part	Put in its normal or other suitable location.	Finger reattachment
Reposition	Moving	All or a portion of a body part	Put in its normal or other suitable location. Body part may or may not be cut out or off	Reposition undescended testicle
Transfer	Moving	All or a portion of a body part	Without taking out body part; assumes function of similar body part and remains connected to its vascular and nervous supply	Tendon transfer
<b>Procedures that take out or eliminate solid matter, fluids, or gases from a body part:</b>				
Drainage	Taking or letting out	Fluids and/or gases from a body part	Without taking out any of the body part	Incision and drainage
Extirpation	Taking or cutting out	Solid matter in a body part	Without taking out any of the body part	Thrombectomy
Fragmentation	Breaking down	Solid matter in a body part	Without taking out any of the body part or any solid matter	Lithotripsy of gallstones
<b>Procedures that only involve examination of body parts and regions:</b>				
Inspection	Visual and/or manual exploration	A body part	Performed with or without optical instrumentation, directly or through body layers	Diagnostic arthroscopy
Map	Locating	Route of passage of electrical impulses or functional areas in a body part	Applicable only to cardiac conduction mechanism and central nervous system	Cardiac mapping

## Comparison of Medical and Surgical Root Operations

Operation	Action	Target	Clarification	Example
<b>Procedures that can be performed only on tubular body parts:</b>				
Bypass	Altering the route of passage	Contents of tubular body part	May include use of living tissue, non-living biological material or synthetic material which does not take the place of the body part	Gastrojejunal bypass
Dilation	Expanding	Orifice or lumen of tubular body part	By application of intraluminal pressure or by cutting the wall or orifice	Anal sphincter dilation
Occlusion	Completely closing	Orifice or lumen of tubular body part	N/A	Fallopian tube ligation
Restriction	Partially closing	Orifice or lumen of tubular body part	N/A	Cervical cerclage
<b>Procedures that always involve devices:</b>				
Insertion	Putting in	Device in or on a body part	Does not physically take the place of a body part	Pacemaker insertion
Replacement	Putting in or on	Biological or synthetic material; living tissue taken from same individual	Physically takes the place of all or a portion of a body part	Total hip replacement
Supplement	Putting in or on	Biological or synthetic material; living tissue taken from same individual	Physically reinforces or augments a portion of a body part	Herniorrhaphy using mesh
Removal	Taking out or off	Device from a body part	N/A	Cardiac pacemaker removal
Change	Taking out or off and putting back	Identical or similar device in or on a body part	Without cutting or puncturing skin or mucous membrane	Drainage tube change
Revision	Correcting	Malfunctioning or displaced device in or on a body part	To the extent possible	Hip prosthesis adjustment
<b>Procedures involving cutting or separation only:</b>				
Division	Separating	A body part	Without taking out any of the body part	Osteotomy
Release	Freeing	A body part	Eliminating abnormal constraint without taking out any of the body part	Peritoneal adhesiolysis
<b>Procedures involving other repairs:</b>				
Control	Stopping or attempting to stop	Postprocedural bleeding	Limited to anatomic regions and extremities	Control of postprostatectomy bleeding
Repair	Restoring	A body part to its normal structure	To the extent possible	Hernia repair
<b>Procedures with other objectives:</b>				
Alteration	Modifying	Anatomic structure of a body part	Without affecting function of body part, performed for cosmetic purposes	Face lift



## Comparison of Medical and Surgical Root Operations

<b>Operation</b>	<b>Action</b>	<b>Target</b>	<b>Clarification</b>	<b>Example</b>
Creation	Making	New genital structure	Does not physically take the place of a body part, used for sex change operations	Artificial vagina creation
Fusion	Joining together	An articular body part	Rendering body part immobile	Spinal fusion

## APPENDIX C

### Components of the Medical and Surgical Approach Definitions

Access Location	Method	Type of Instrumentation	Approach	Example
Skin or Mucous Membrane	Open	N/A	Open	Abdominal hysterectomy
Skin or Mucous Membrane	Instrumental	Without Visualization	Percutaneous	Needle biopsy of liver
Skin or Mucous Membrane	Instrumental	With Visualization	Percutaneous Endoscopic	Arthroscopy
Orifice	Instrumental	Without Visualization	Via Natural or Artificial Opening	Endotracheal tube insertion
Orifice	Instrumental	With Visualization	Via Natural or Artificial Opening Endoscopic	Sigmoidoscopy
Skin or Mucous Membrane	Open	With Visualization	Open with Percutaneous Endoscopic Assistance	Laparoscopic-assisted vaginal hysterectomy
Skin or Mucous Membrane	N/A	N/A	External	Closed fracture reduction

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