

NAHLN Method OID User Guide

The purpose of this document is to provide a definition of the object identifier (OID) used by the Veterinary Services (VS), National Veterinary Services Laboratories (NVSL) National Animal Health Laboratory Network (NAHLN) and the process used by the NAHLN Program Office to establish and maintain unique OIDs that apply to NVSL methods used by NAHLN laboratories.

I. Introduction

An OID is an increasingly used data collection format in the area of health care and public health informatics. Health Level Seven (HL7), a standards-developing organization in the area of electronic health care data exchange, is an assigning authority at the 2.16.840.1.113883 (joint-iso-itu-t.country.us.organization.hl7) node. HL7 maintains its own OID registry, and as of January 1, 2010 it contained over 4,500 nodes, most of them under the HL7 root. The Centers for Disease Control and Prevention has also adopted OIDs to manage the many complex value sets or "vocabularies" used in public health. The various OIDs are available in the Public Health Information Network (PHIN) Vocabulary Access and Distribution System (VADS).

The following is a brief summary of the OID development. The International Organization for Standardization (ISO) initiated the OID concept; subsequently, the HL7 OIDs branched from the ISO tree; the American Association of Veterinarian Laboratory Diagnosticians (AAVLD) then started a branch off the HL7 tree; and finally, NVSL/NAHLN & each of the AAVLD labs have branched off the AAVLD tree.

II. Composition of an OID:

The method OID list is a way to uniquely number the specific method used when performing a test. It is a numbering system for multiple concepts that allows for adding additional data wherever needed by finding the most specific / closely related segment, adding a "." and continuing with the numbering scheme infinitely. Each segment between "." is further referred to as a node.

For example:	A.1	General branch
	A.1.1	Concept 1
	A.1.2	Concept 2
	A.1.2.1	Concept 2 has three branches, this is the first
	A.1.2.2	This is the second branch for Concept 2
	A.1.2.3	This is the third branch for Concept 2
	A.1.2.3.1	There are 2 sub-branches for Concept 2.Branch 3, this is the first
	A.1.2.3.2	This is the second sub-branch for Concept 2.Branch 3

a. Building upon the AAVLD Root OID - More information on the NVSL / NAHLN Method OID list:

An OID is a unique identifier that is maintained by an Assigning Authority. AAVLD is the Assigning Authority for this branch from the HL7. Each AAVLD laboratory has requested a specific branch number off of the AAVLD root. Additional information for registering a specific

branch number can be located at <http://vtsl.vetmed.vt.edu/nahln/main.cfm> under helpful links – OID registry.

Proposed OID Hierarchy for NVSL					
	OID	Extension	Description	Type	Method
4	2.16.840.1.113883.3.5		AAVLD Root	Abstract	
5	2.16.840.1.113883.3.5	.1	Partners	Abstract	
6	2.16.840.1.113883.3.5	.1.7	Laboratory	Instance	National Veterinary Services Laboratories
7	2.16.840.1.113883.3.5	.1.7.1	Accession Number	Instance	
8	2.16.840.1.113883.3.5	.1.7.1.1	CALS(ILIMS)	Instance	7 digit number with constraints from NFC
9	2.16.840.1.113883.3.5	.1.7.1.2	FADDL(HP3000)	Instance	THE ACCOUNT NUMBERS AT FADDL ARE SEQUENTIAL, "000001" PREFIXED WITH FY (YY) "05000001" TO MAKE SEVEN DIGITS
10	2.16.840.1.113883.3.5	.1.7.2	Account ID	Instance	
11	2.16.840.1.113883.3.5	.1.7.2.1	CALS People Keys	Instance	Pekey, Pekeyv
12	2.16.840.1.113883.3.5	.1.7.2.2	FADDL People Keys	Instance	Submitter Name no table - individual entries
13	2.16.840.1.113883.3.5	.1.7.3	Patient Identifier	Instance	
14	2.16.840.1.113883.3.5	.1.7.3.1	Individual Animal Identifier	Instance	
15	2.16.840.1.113883.3.5	.1.7.3.2	Animal Group Identifier	Instance	
16	2.16.840.1.113883.3.5	.1.7.4	Specimen Identifier	Instance	LIMS unique Sample Key
17	2.16.840.1.113883.3.5	.1.7.4.1	Sub-Specimen Identifier	Instance	specimen derived from a source or parent specimen. May not be handled if tracking is done internally.
18	2.16.840.1.113883.3.5	.1.7.5	Order Identifier	Instance	
19	2.16.840.1.113883.3.5	.1.7.5.1	Placer Order Identifier	Instance	
20	2.16.840.1.113883.3.5	.1.7.5.2	Filler Order Identifier	Instance	
21	2.16.840.1.113883.3.5	.1.7.6	Observation/Result Identifier	Instance	
22	2.16.840.1.113883.3.5	.1.7.7	Local Service Identifier	Instance	
23	2.16.840.1.113883.3.5	.1.7.7.1	Local Battery/Panel Identifier	Instance	
24	2.16.840.1.113883.3.5	.1.7.8	Local Method Identifier	Instance	

The rows highlighted in yellow indicate a recommended way, from the Assigning Authority, for each laboratory to establish their own specific OID branch. Directly after the unique laboratory extension (which is “.7” for NVSL, for example), the nodes recommended for the following areas are listed below:

- “.1” for Accession number
- “.2” for Account ID
- “.3” for Patient Identifier
- “.4” for Specimen Identifier
- “.5” for Order Identifier
- “.6” for Observation/Result Identifier
- “.7” for Local Service Identifier
- “.8” for Local Method Identifier

b. NAHLN Method OIDs

To create the NAHLN Method OID list, begin with the AAVLD root, continue with the NVSL number, add the “.8” to indicate the beginning of a Method OID list.

- The following node identifies the method as follows:
 - “.1” for NVSL Methods
 - e.g. NVSL Method OID is 2.16.840.1.113883.3.5.1.7.8.1
- The following node identifies the disease or agent as follows:
 - “.1” for Avian Influenza Methods
 - “.2” for Bovine Spongiform Encephalopathy Methods
 - “.3” for Classical Swine Fever Methods
 - “.4” for Chronic Wasting Disease Methods
 - “.5” for Foot and Mouth Disease Methods
 - “.6” for Newcastle Disease Methods

“.7” for Scrapie Methods
“.8” for Vesicular Stomatitis Methods
“.9” for Pseudorabies Methods
“.10” for Swine Influenza Methods
“.11” for Rinderpest Methods

e.g. AI (NVSL) Method OID is 2.16.840.1.113883.3.5.1.7.8.1.**1**

Diseases or agents will be added to this node as needed using the next available digit.

- The following nodes provide detailed information pertaining to the disease or agent specified including, in order: assay, SOPs, equipment/platform, extraction, and chemistry specific to the assays. Refer to extension charts for a list of node values for each assay in appendix A.

III. Method OID numbers will be adjusted when:

- NVSL has validated new platforms, extraction and/or chemistries for assays within the NAHLN scope.
- Platforms, extractions and/or chemistries are determined to be no longer valid. The associated Method OIDs would then be archived.
- New disease or agent is added to the NAHLN scope.
- NVSL releases updated version of SOPs used for NAHLN testing.
 - SOPs for a method options are grouped together. This allows for one SOP node instead of a node assigned to each SOP.
 - The node that represents the current version of the SOPs will increase by one.
 - The NAHLN Program Office will coordinate with the responsible NVSL laboratory to identify any changes in the SOPs that may affect another node.

IV. Notifications: New and Revised version of NAHLN Method OIDs will be provided to NVSL, Virginia Tech Veterinary Medical Informatics Laboratory, the NAHLN Information System Subject Matter Expert and to NAHLN Laboratories.

V. Appendices:

- a. Assay Extension Charts
- b. NAHLN Method OID Questions and Answers

Appendix A: Assay Extension Charts

The Assay Extension Charts provide the *data information* designated for each node.

E.g. The Classical Swine Fever PCR Method OID would include information on:

- specify assay used
- specific version of the standard operating procedures
- PCR platform and PCR chemistry
- Extraction platform and Extraction chemistry

Note: Notifications of new and/or revised Method OID will be distributed as described in the NAHLN Method OID User Guide Section IV

PCR	NVSL OID Extension											
AAVLD Root		AAVLD Partners Laboratory	Laboratory (NVSL)	Local Method Identifier	NVSL Methods	Disease or Agent (3 =CSF)	Assay (PCR)	Standard Operating Procedure (SOPs)	PCR Platform	PCR Chemistry	Extraction Platform	Extraction Chemistry
	2.16.840.1.113883.3.5	.1	.7	.8	.1	.3	.1					

Immunohistochemistry	NVSL OID Extension											
AAVLD Root	AAVLD Partners Laboratory	Laboratory (NVSL)	Local Method Identifier	NVSL Methods	Disease or Agent (4=CWD)	Assay (IHC)	Standard Operating Procedure (SOPs)	Equipment	Sample Pre-Treatment	Platform	Antibody Chemistry	Detection Chemistry
	2.16.840.1.113883.3.5	.1	.7	.8	.1	.4						

ELISA	NVSL OID Extension									
AAVLD Root	AAVLD Partners Laboratory	Laboratory (NVSL)	Local Method Identifier	NVSL Methods	Disease or Agent (2=BSE)	Assay (ELISA)	Standard Operating Procedure (SOPs)	Platform / Equipment	Sample Preparation*	Detection Chemistry
	2.16.840.1.113883.3.5	.1	.7	.8	.1	.2	.2			

Compliment Fixation	NVSL OID Extension							
AAVLD Root	AAVLD Partners Laboratory	Laboratory (NVSL)	Local Method Identifier	NVSL Methods	Disease or Agent (8= VSV)	Assay (CF)	Standard Operating Procedure (SOPs)	
2.16.840.1.113883.3.5	.1	.7	.8	.1	.8	.1		

VI	NVSL OID Extension								
AAVLD Root	AAVLD Partners Laboratory	Laboratory (NVSL)	Local Method Identifier	NVSL Methods	Disease or Agent (9+ SIV)	Assay (VI)	Standard Operating Procedure (SOPs)	VI Platform	VI Chemistry
	2.16.840.1.113883.3.5	.1	.7	.8	.1	.9	.1		

Appendix B: NAHLN Method OID Questions and Answers

The NAHLN Program used the AAVLD Root Object Identifier (OID) to develop method OIDs to allow NAHLN Laboratories to message results into the NAHLN IT System. The NAHLN Program staff began work in 2009 on the process of extending the Method OID numbers associated with validated assays to increase our understanding of the performance of assays and expand our ability to analyze test results data. Some commonly asked questions concerning OIDs and how they will be used and distributed follows:

What is a Method OID number? OID stands for object identifier. The Method OID number is a unique number that represents an assay used in the laboratory information management system (LIMS) and electronic results messaging of the NAHLN laboratories.

Why would an extended Method OID number be important? Extending the Method OID number allows analysis of data from NAHLN assays by identifying the SOP version as well as various parameters used to conduct a test such as amplification, extraction, and chemistry.

How will the additional information be used? Having the additional information will give us the ability to monitor the performance of assays over time. If there are problems with a specific portion of an assay, for example, if we analyze the data and determine that one amplification platform isn't performing as well as another, we would be able to contact all the laboratories using that platform and explain the issues as well as potential solutions. The data could also be analyzed to determine if cutoffs need to be modified.

What does a NAHLN Method OID number look like? A NAHLN Method OID is a series of digits separated by decimal point. The number between each decimal represents a specific value.

Breakdown of the additional data collected by the Method OID extension

Current AI H5 PCR Method OID	Extension of Method OID				
2.16.840.1.113883.3.5.1.7.8.1.1.2	.2	.1	.1	.1	.1
SOP(s) versions					
PCR Platform					
PCR Chemistry					
Extraction Platform					
Extraction Chemistry					
Example Extended Method OID number					
Avian Influenza Virus - H5 RRT PCR - Smart Cycler - Qiagen One-Step - Manual - Qiagen RNeasy					
2.16.840.1.113883.3.5.1.7.8.1.1.2.2.1.1.1					

How will the new Method OID numbers be distributed? The Method OID numbers will be distributed in an electronic spreadsheet as a matrix. The OID matrixes are being built by disease. Once a disease OID matrix is complete it will be sent to the NAHLN Laboratory Director and the NAHLN Laboratory IT Contact as designated by the Laboratory Director. As NVSL SOPs designated for NAHLN Laboratories are developed and finalized, they will be reviewed to determine if a NAHLN Method OID number needs to be developed or revised. The e-mail

notification for the new Controlled Copy SOP(s) will include a revised OID Matrix and implementation deadlines.

Method OID numbers are also published at the Virginia Tech Veterinary Terminology Services Laboratory website (<http://vtsl.vetmed.vt.edu/nahln/main.cfm>). A search for 'Approved test method OIDs' will provide a human readable list of OIDs organized under appropriate test names (LOINC encoded). Method OIDs can be manually downloaded as the full subset or as new or retired OIDs within specified timeframes. NAHLN Laboratory IT Contacts registered to receive terminology update notifications will also learn about newly added or archived OIDs by email within 24 hours of website publication.

Who is involved in implementing Method OID numbers in NAHLN Laboratories? The NAHLN Laboratory IT Contact and NAHLN Laboratory personnel are expected to review the information and determine which OIDs apply to the methods being used in their laboratory. They are expected to make any necessary modifications to the LIMS and electronic results messaging. Prior Method OIDs will be archived in accordance to the individual NAHLN Laboratory's Quality System.