

# Patient Care Devices

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Co-chair, IHE PCD Technical Committee

HIMSS

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## IHE Patient Care Devices (PCD)

### *IHE-PCD Charter*

The Patient Care Device Domain is concerned with **Use Cases** in which at least one actor is a **regulated patient care device**. The PCD coordinates with other IHE clinical specialty based domains such as medical imaging and laboratory.

✓ **NOTE:** Formed in 2005 & sponsored by HIMSS & ACCE

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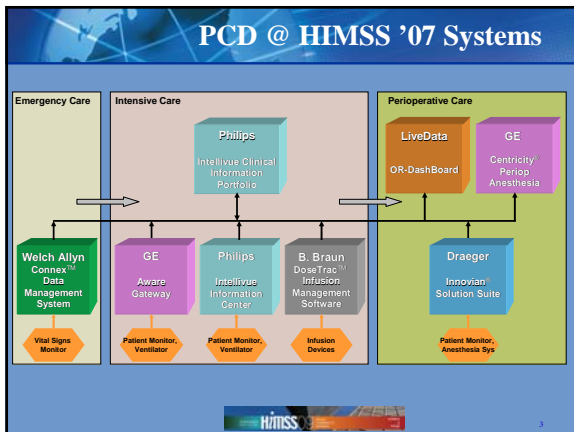
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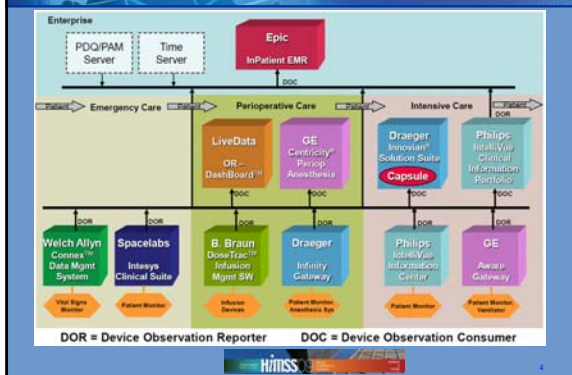
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## PCD @ HIMSS '08 Systems




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## PCD @ HIMSS Showcase '08




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## PCD Profile Development

- **Framework Development 2006-2008**
  - Enterprise sharing of Patient Care Data (DEC)
  - Patient Identity Binding to Device Data (PIB)
  - Subscribe to Patient Data (SPD)
- **Key Objectives 2008/2009**
  - Rosetta Stone Terminology Project (RTM)
  - PCD Alarm Communication Management (ACM)
  - Point-of-care Infusion Verification (PIV)
- **Key Objectives 2009 and beyond**
  - Device Point-of-care Integration (DPI)
  - Medical Equipment Management (MEM)
  - Waveform Communication Management (WCM)
  - Query for Bulk Data (QBD)
- **Initial device classes...**  
vital signs / physiological monitors, infusion pumps and ventilators

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## PCD Profile Development

- **2009 White Paper Proposals**
  - Device Point-of-care Integration (DPI)
  - Medical Equipment Management (MEM)
  - Medical Device Semantic Architecture
  - Regulatory Considerations in Deploying Systems  
Incorporating IHE PCD Profiles
- **IHE PCD Users Handbook**
  - What is & is not specified in PCD Profiles
  - How to assess PCD profile support
  - System verification & validation testing considerations




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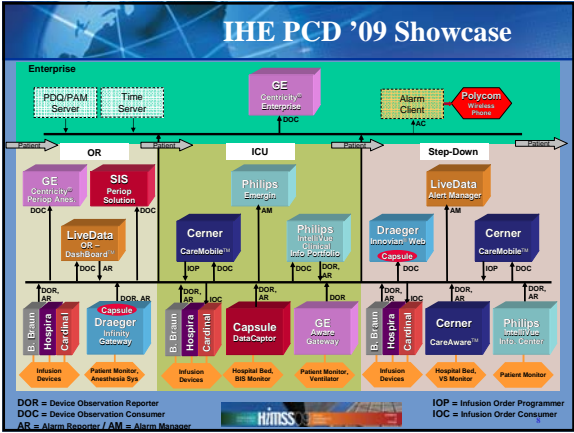
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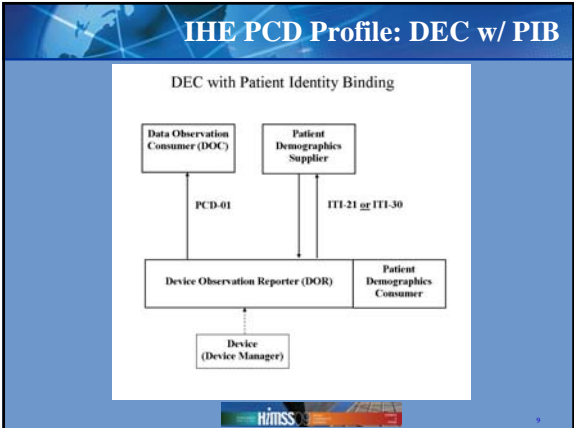
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## IHE PCD DEC: Simplified Specs



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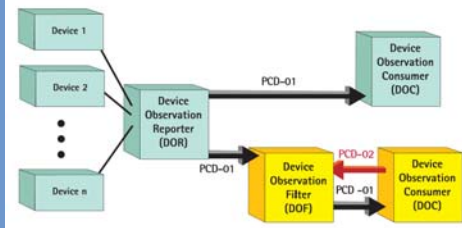
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## IHE PCD Profile: DEC w/ SPD

The Subscribe to Patient Data (SPD) option allows a consumer to specify a filter for PCD data using the following criteria:

- Medical Record Number (MRN)
- Device Class
- Update Interval
- Patient Location
- Parameter Class
- Subscription Start and End Times



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## IHE PCD Profile: RTM

**PCD SYSTEMS PROJECT**

Recent after the Health Data, the PCD Research Project aims to create and promote a common framework and set of standards for virtually all physical measurements in the US/IEEE 11073-10101 what.

Open, interoperable and related standards such as DICOM.

This will facilitate and ensure interoperability between device and systems, including IHE systems using the IHE PCD-01 Technical Framework.

This level of collaboration for the common good is open to all vendors in the IHE PCD.

**PCD SYSTEMS PROJECT**

Measurement	Category
Heart Rate	Heart Rate
Heart Rate Variability	Heart Rate
Respiration Rate	Respiration
Respiration Rate Variability	Respiration
Temperature	Temperature
Temperature Variability	Temperature
Activity	Activity
Activity Variability	Activity
Position	Position
Position Variability	Position
Acceleration	Acceleration
Acceleration Variability	Acceleration
Angular Velocity	Angular Velocity
Angular Velocity Variability	Angular Velocity
Angular Acceleration	Angular Acceleration
Angular Acceleration Variability	Angular Acceleration
Force	Force
Force Variability	Force
Pressure	Pressure
Pressure Variability	Pressure
Volume	Volume
Volume Variability	Volume
Flow	Flow
Flow Variability	Flow
Electrical Impedance	Electrical Impedance
Electrical Impedance Variability	Electrical Impedance
Electrical Impedance	Electrical Impedance
Electrical Impedance Variability	Electrical Impedance
Electrical Impedance	Electrical Impedance
Electrical Impedance Variability	Electrical Impedance



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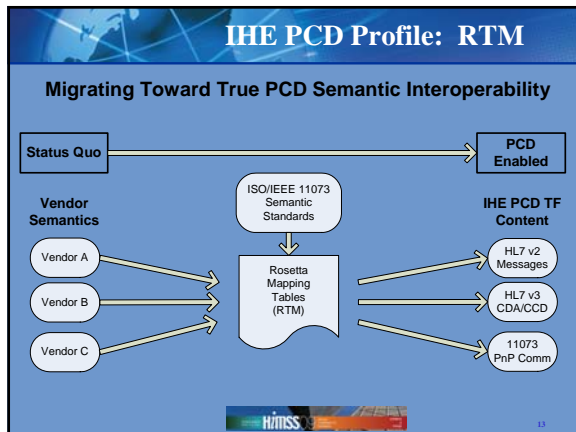
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## IHE PCD Profile: RTM

Group	REFERENCE_ID	Vendor Description	CODE	Vendor A	Vendor B	Vendor C
CVS_ECG_HR	MDC_ECG_CARD_BEAT_RATE	Heart Rate (DBR 326)	16770	HR	HR	HR
CVS_ECG_HR	MDC_ECG_CARD_BEAT_RATE_BTb	Beat-to-Beat Rate	16778			btbHR
CVS_ECG_HR	MDC_ECG_HEART_RATE	Heart Rate (DBR 217b)	16770	HR	HR	HR
CVS_ECG_HR	MDC_ECG_PACED_BEAT_RATE	%PACED	16654	%PACED		
CVS_ECG_HR	MDC_ECG_TIME_PD_RR_GL	R to R Interval	16168	r_time	r_time	r_time
CVS_ECG_QT	MDC_ECG_TIME_PD_QT_GL	QT interval	16160			QT
CVS_ECG_QT	MDC_ECG_TIME_PD_QTc	QT interval (corrected)	16164			QTc
CVS_ECG_RHY	MDC_ECG_ARRHY	Arrhythmia	4410	ARR		
CVS_ECG_RHY	MDC_ECG_V_P_C_CNT	PVC rate.	16993	PVC/min	PVC	PVC
CVS_ECG_ST	MDC_ECG_AMPL_ST	ST generic label	708	ST		ST
CVS_ECG_ST	MDC_ECG_AMPL_ST_AVF	ST lead aVF	832	STaVF	ST-AVF	ST-aVF
CVS_ECG_ST	MDC_ECG_AMPL_ST_AVL	ST lead aVL	831	STaVL	ST-AVL	ST-aVL
CVS_ECG_ST	MDC_ECG_AMPL_ST_AVR	ST lead aVR	830	STaVR	ST-AVR	ST-aVR

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## IHE PCD Profile: RTM

### 2008/09 RTM development goals...

- ✓ **Expand number of numeric parameters** supported by PCD-01 from 40 today to over 400;
- ✓ **Harmonize** the use of existing nomenclature terms defined by ISO/IEEE 11073-10101;
- ✓ Specify the **units-of-measure, enumerated values** and **body sites** associated with **each** numeric parameter;
- ✓ Identify and **define new nomenclature terms** that are currently missing from the ISO/IEEE 11073-1010x standards.

**NOTE:** Respiratory / Ventilator terms are a major area. See [http://wiki.ihe.net/index.php?title=PCD\\_RTML\\_Ventilator](http://wiki.ihe.net/index.php?title=PCD_RTML_Ventilator)

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## IHE PCD Profile: ACM

**Alarm Communication Management**

...enables systems to deliver the *right alarms*, with the *right priority*, to the *right individuals* via devices with the *right content*, escalating to other individuals via devices (based on system configuration)




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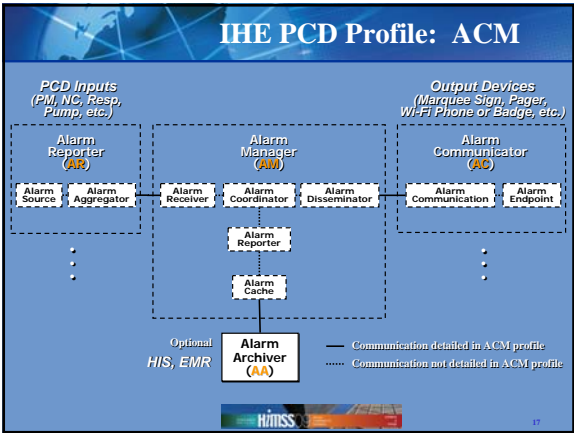
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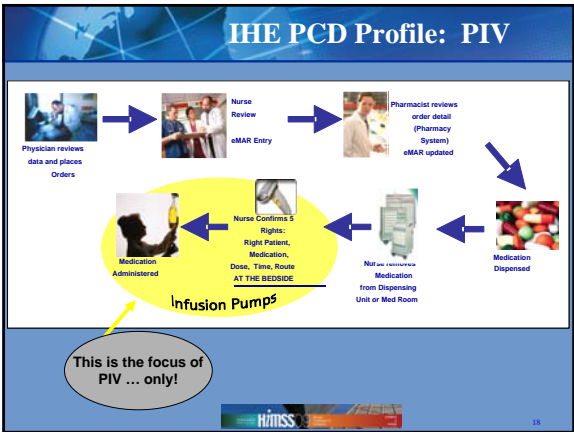
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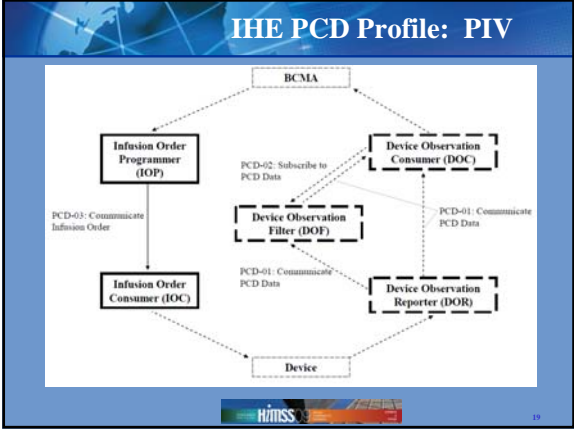
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### IHE PCD Profile: DPI

✓ **DPI: Scope –**

*Device Point-of-care Integration (DPI) is concerned with use cases that include care contexts that fall within the stated charter of the IHE PCD, namely where "at least one actor is a regulated patient centric point-of-care medical device," and that require device-to-device communication.*

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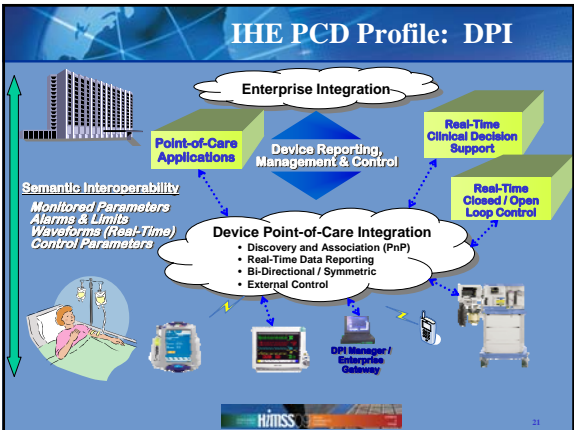
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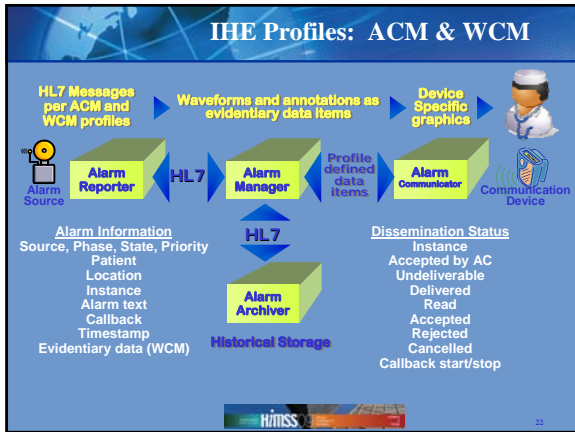
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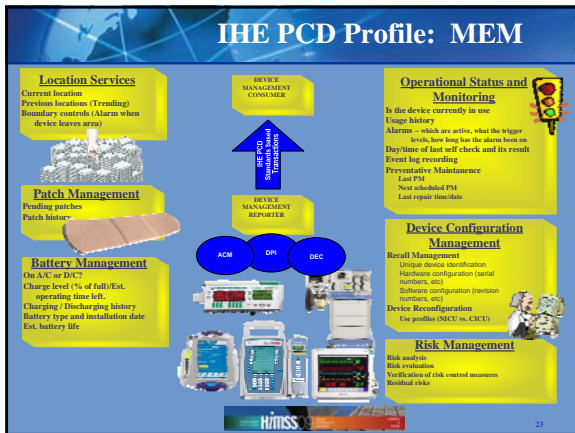
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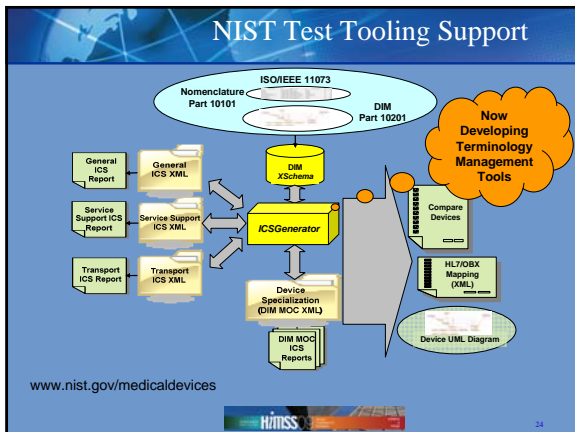
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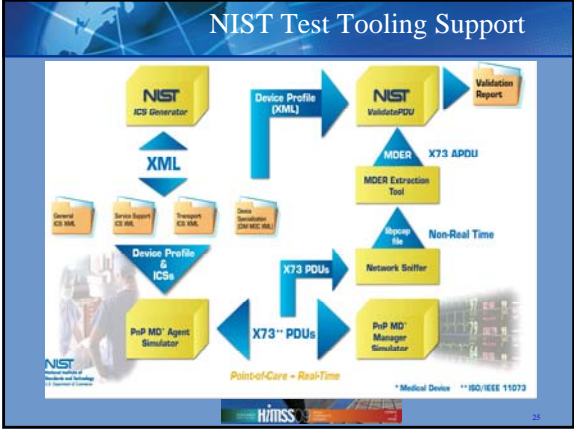
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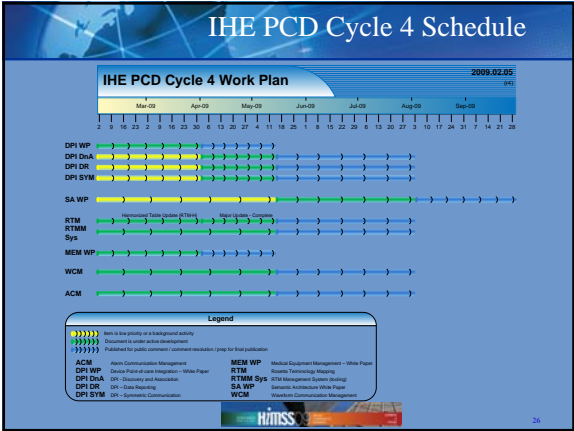
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- ### PCD & Industry Coordination
- PCD coordination with other groups...**
- ✓ **HL7 & IEEE EMB (MoU's)**
  - ✓ **Continua Health Alliance (MoU)**
  - ✓ **HITSP (RMON & CMDC use cases)**
  - ✓ **CIMIT MDPnP Program & "ICE" Architectures (ICE-PAC group)**
- HIMSS

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**PCD - Meeting Expectations!**

**ECRI – Anticipated Health I.T. Benefits:  
Improved...**

- ✓ **Patient safety**
- ✓ **Quality of care**
- ✓ **Clinical workflow efficiency**

**IHE PCD Profiles and Tooling –  
Enabling improved patient care!**




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**For Further Information**

- **Internet**
  - Web: [www.ihe.net/pcd](http://www.ihe.net/pcd)  
[www.acenet.org/ihe](http://www.acenet.org/ihe)
  - Wiki: [wiki.ihe.net/index.php?title=Patient\\_Care\\_Device](http://wiki.ihe.net/index.php?title=Patient_Care_Device)
- **PCD Co-Chairs**
  - Ken Fuchs                      Planning Committee                      [ken.fuchs@draeger.com](mailto:ken.fuchs@draeger.com)
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  - Elliot Sloane                      IHE International                      [esloane@IEEE.org](mailto:esloane@IEEE.org)
  - Ray Zambuto                      ACCE                                      [Ray.Zambuto@techmed.lincoln.com](mailto:Ray.Zambuto@techmed.lincoln.com)




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