IHE SUCCESS STORY

Legacy Instrument Workflow Integration & DICOM Image Management

SUCCESS SNAPSHOT
Facility Name: Daniel Benson, MD
Facility Location: Kalmath Falls, Oregon
Project Manager: Ophthalmic Tools

BACKGROUND:
Provide superior patient care while improving clinical workflow.

DR. DANIEL BENSON, MD, PC

Dr. Daniel Benson is in a private practice located in Kalmath Falls, Oregon. Dr. Benson has been performing refractive surgery of the eye since 1983 and excimer laser procedures since Jan., 1997. His memberships and honors include Alpha Omega Alpha Honor Medical Society and former member Mensa Society.

While attending the American Academy of Ophthalmology International meeting, Dr Benson visited the IHE EyeCare Showcase exhibit where he became familiar with the AAO involvement and promotion of IHE (Integrating the Health Care Enterprise) Eye Care standards-based application in Ophthalmology. For years, Dr. Benson has been interested in developing an EHR software program to assist him in his practice. In his review of existing solutions, Dr. Benson found that most were proprietary in design and required extensive modifications and development of specific instrument interfaces to meet his requirements for the practice of ophthalmology.

In discussions with TSG Integrations & Ophthalmic Tools, He learned of the IHE EyeCare Workflow profile and its emphasis on image management, instrument integration and information system interoperability. He became convinced that this was a solution for his practice. Upon further review, he learned of the Charge Posting (EC-CHG), Evidence Document (ECED) and Displayable report (ECDR) Eye Care Profiles and agreed to become a Beta Test site for TSG Integrations.

SOLUTION:
TSG Integrations provided TSG iView software solution to coordinate HL7 and DICOM transactions between the existing McKesson Lytec Practice Management (PMS) and various ‘IHE Actors’ in the IHE Eye Care Profiles. The TSG View Department System Scheduler/Order Filler, Performed Procedure Step Manager, Acquisition Modality Importer (AMI), Image Manager/Archive and Display were selected since it was IHE Eye Care compliant in accordance with the 2011 IHE Eye Care Technical Framework, Integration Profiles and Transactions.

IHE PROFILES IMPLEMENTED:
Scheduled Workflow (A-EYECARE), Charge Posting (EC-CHG), Evidence Documents (ECED), Displayable Reports (ECDR)

RESULTS:
• Time savings during the patient exam process (Query Modality Worklist)
• Significant reduction of errors during exam process. (Procedure Scheduled, Filler Order Management, Modality Worklist)
• Audit trails were created & verified for insurance image documentation (MPPS, Storage Commitment)
• Significant time savings for Dr. Benson image evaluation procedure (Displayable Report ECDR, Image Display)
• Cost savings in color ink & paper expense (Storage Commitment, AMI actor)
CHALLENGE:
Integration of Clinical Information System

Dr. Benson wanted to integrate his existing Practice Management software, which his office staff had become experts & were comfortable using with his EHR software program. Up to now, they were separate systems. He requested a communication link for exchange of patient information to be created for these existing systems and the TSG iView Image Manager. He understood that the main ‘backbone’ of his clinical information system will be the IHE Scheduled Workflow process utilizing TSG iView Order Filler/Department System Scheduler, Image Manager/Archive, Performed Procedure Step Manager and Acquisition Modality Importer (TSG AMI).

To keep the total cost of this integration project within a reasonable budget, Dr. Benson wished to utilize his existing non DICOM legacy instrumentation, Zeiss Stratus OCT, Zeiss Atlas Topographer, OIS Fundus Camera and Humphrey Visual Fields.

Also of importance to Dr Benson and staff was to streamline his insurance billing process and improve the patient exam written evaluation, interpretation and report documentation for each diagnostic test.

SOLUTION:
Implementing IHE EyeCare Workflow and Initiating Use of Acquisition Modality Importer (TSG AMI)

TSG Integrations provided the software to coordinate the HL7 and DICOM transactions between the existing software systems and the selected IHE Actors using a modified TSG iView Department System Scheduler/Order Filler, Performed Procedure Step Manager, Acquisition Modality Importer (TSG AMI), Image Manager/Archive and Image Display.

All of Dr. Benson’s existing non DICOM instruments were successfully integrated with the TSG AMI and now he is able to view process and analyze images of all legacy modalities on one single platform. He is able to compare and contrast, side by side on one display, an OCT result, fundus image, visual field and corneal topography exam. This improves his efficiency, productivity and accuracy of the diagnosis.

To streamline the insurance billing process and provide an audit trail of images, the TSG AMI utilizes the IHE transaction – Modality Procedure Step in Process and Modality Procedure Step Completed – to communicate with the Performed Procedure Step Manager actor – to confirm that a specific exam procedure was actually performed. This information is then sent back to the Order Filler actor producing the appropriate diagnostic and procedure code for billing. The next step is to integrate these HL7 messages with the Lytec Billing system.
INTEROPERABILITY IN ACTION:
Standards and Profiles

• Scheduled Workflow (A-EYECARE)
• Charge Posting (EC-CHG)
• Evidence Documents (ECED)
• Displayable Reports (ECDR)
• Acquisition Modality Importer – A system that interfaces to a non-DICOM ready modality in order to integrate that modality into the Eye Care workflow

* Images obtained from and credit is given to: IHE Eye Care; Flora Lum, M.D., Policy Director, Quality of Care and Knowledge Base Development, American Academy of Ophthalmology.

RESULTS & BENEFITS:
The Value of ‘TSG iView’ Clinical Workflow Solution

Dr. Benson’s clinical staff received value from the TSG iView instrument integration and workflow installation almost immediately. Within the first few weeks, the staff experienced improved patient exam times, simplicity in presenting the exam results for Dr. Benson’s evaluation, eliminated the paper printing of instrument exam results and reduced the need of manual notations for billing.

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• Audit trails were created & verified for insurance image documentation (MPPS, Storage Commitment)
• Significant time savings for Dr. Benson’s image evaluation procedure (Displayable Report ECDR, Image Display)
• Cost savings in color ink & paper expense (Storage Commitment, AMI actor)
• Improved and accurate insurance billing (EC-CHG ; Order Filler)
• Installation required no practice “down time” and little formal training

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Use of IHE-based systems is a wise choice because IHE provides a proven foundation to support a connected healthcare environment by solving the interoperability challenges faced by today’s healthcare providers. Most clinical settings use a wide variety of systems and modalities from different manufacturers and as a result, exchange of patient data is a significant challenge.

IHE provides a solution via a common framework, referred to as IHE “Profiles” that enable the coordinated use of established standards such as HL7, DICOM, OASIS, and many others. IHE profiles address critical interoperability issues related to information access for care providers and patients, clinical workflow, security, administration and information infrastructure. IHE also defines a process by which these profiles are subjected to rigorous validation and conformance testing.

Together this framework and process result in health IT systems that are able to communicate with one another better, are easier to implement, and allow care providers to more effectively use information.

Why IHE?
Use of IHE helps clinical end-users resolve interoperability challenges. The ability to efficiently and securely access and exchange patient health data has long been a difficult challenge to resolve. Now with the addition of new incentives such as demonstrating ‘ Meaningful Use’ in the United States and similar mandates elsewhere in the world, IHE provides a proven solution to resolve health IT interoperability challenges. Use of IHE enables a collaborative environment between healthcare providers and industry leaders to improve the effective and secure exchange of patient health information.

Benefits of using IHE-based Systems for Hospitals and other Enterprise Clinical Settings:

- **Fewer interfaces:** It’s not unusual for a 100-bed hospital to have dozens of interfaces - with IHE-based systems the need to create and maintain costly interfaces is greatly reduced.

- **Meeting reporting requirements:** Products developed using IHE can help end users more easily meet reporting requirements such as Meaningful Use in the United States and similar requirements worldwide.

Benefits of Using IHE Frameworks for Health IT Product Developers:

- **Reduce and improve product development cycles:** By implementing IHE, vendors can streamline their product development cycles by leveraging this integration capability across multiple customers, thus allowing staff to focus more attention on creating new product features and functions.

Founded in 1997 by HIMSS and RSNA, IHE is a global non-profit organization with stakeholder engagement of hundreds of volunteers representing the healthcare community worldwide.

Learn more about how IHE can help you, visit [www.ihe.net](http://www.ihe.net) or email [secretary@ihe.net](mailto:secretary@ihe.net).