



# WHAT IS "PDF HEALTHCARE?" HINT: A LOT MORE THAN JUST A PDF.

**THIS BEST PRACTICES GUIDE, SUPPLEMENTED BY AN IMPLEMENTATION GUIDE, PROVIDES A CLINICAL ADVANCE IN THE SECURE EXCHANGE OF HEALTH INFORMATION THAT IS RIGHT HERE, RIGHT NOW.**

**P**DF HEALTHCARE IS A "BEST PRACTICES GUIDE" (BPG) THAT IS SUPPLEMENTED BY an "Implementation Guide" (IG). The PDF Healthcare BPG and the IG are based on open, published specifications with direction specific to the healthcare industry and available from AIIIM (see footnote 2). The BPG and IG describe little known attributes of the Portable Document Format (PDF, a global, open standard since July 1, 2008; ISO 32000-1:2008)<sup>1</sup> – freely viewable on almost every laptop/desktop around the world – to facilitate the capture, exchange, preservation and protection of healthcare information.

Such attributes include the ability for healthcare providers and consumers to develop a secure, electronic **container** that stores and transmits relevant healthcare information. It can include but is not limited to personal, handwritten documents, (structured or unstructured) clinical notes, (structured) laboratory test result reports, (unstructured) word-processed/text summary reports, electronic forms, scanned document images, digital diagnostic images, photographs, and signal tracings (e.g., electrocardiograms [ECGs]).

#### **NOT a proposed standard**

PDF Healthcare is NOT a proposed standard. The PDF Healthcare BPG and IG are intended as guidance for the generation and consumption of secure and portable containers of personal health information (PHR) and EHR information, rather than replacing existing standards or adding new standards for healthcare information interoperability. For example, the currently published and available<sup>2</sup> Version 1 of the PDF Healthcare BPG and IG supports the use of the existing ASTM Continuity of Care Record (CCR) standard as a sample of this implementation. Version 2 of the PDF Healthcare BPG and IG will embrace Health Level 7 (HL7)'s Clinical Document Architecture (CDA) as well as the harmonization effort of the HL7 CDA and the ASTM CCR – the Continuity of Care Document (CCD).

These additional, sample implementations are possible because PDF Healthcare contains any well-formed eXtensible markup language (XML). This allows any standardized data set to be embedded in a PDF and then linked to the actual display of that data, retaining the XML. (NOTE: XML supports what is seen on the screen when the CCR, CDA or CCD is encoded.)

#### **Complements other existing healthcare standards**

Because PDF is well-known and widely accepted, PDF Healthcare **complements** the CCR, CDA, CCD or other existing healthcare interoperability standards. In addition, it stores and exchanges health information prior to – or in lieu of – deploying, for example, complex EHR exchange platform applications. Today, almost every

healthcare provider/consumer laptop/desktop includes the Adobe Reader™, which is freely-available. Nearly all laptops/desktops include Adobe Acrobat™, which, in Version 9, provides complete access to all the newest attributes of PDF.

For example, if a consumer, provider, or provider organization must send a patient's (structured) medication list and (unstructured) radiology exam result report to multiple physician offices – some with office EHRs, some without – the consumer, provider or provider organization is able to embed those documents in the PDF container and securely send them. If the reports were sent to a provider who does not have an office EHR, the receiving provider can view the documents and/or print them to paper. Also, the receiving provider can print the documents to paper from his/her smart phone without a computer! However, if the reports were sent to a provider who has an office EHR, the EHR can consume the XML data in that PDF container and populate their EHR.

#### PDF also has the following, other advantages for healthcare:

- Allows multiple types of digital data (structured or unstructured) to be securely stored, exchanged, and viewed, regardless of the origin, source, or destination of the data.
- Has long-standing success and adoption, including recent dissemination as an ISO open standard.
- Provides data integrity and partitioning functionality desirable for myriad use cases.
- Is platform and system neutral.
- Allows for bidirectional information exchange.
- Allows for selected records to be easily and quickly printed, if necessary.
- **Is NOT just a display format for a document!**

The PDF Healthcare BPG provides guidance for developing documents that require the importing and exporting of data in a PDF container specifically designed to securely store, view and exchange health

information across traditional organization boundaries. The PDF Healthcare IG provides sample use case models, each highlighting the means by which data/documents can be easily exchanged between healthcare organizations. Consequently, the BPG and IG help ease the transition from analog delivery and storage media to digital records as well as bridge the gap between healthcare providers and consumers.

Currently, many leading healthcare organizations and HIT companies participate on the voluntary, PDF Healthcare Committee, which meets biweekly. These organizations and companies represent a cross-section of thought leadership in the healthcare industry. They are supported by the internationally-recognized standards development organizations, ASTM and AIIM.

#### Testimonials from the medical community

Stasia Kahn, M.D., is an independent practitioner located in St. Charles, Ill., and serves as Vice President of the Northern Illinois Physicians for Connectivity. She has been using the CCR as a referral mechanism for other specialists her patients might be seeing, demonstrating the exchange of information between these specialists and her office's NextGen™ EHR system. As such, she uses the PDF Healthcare container to embed and then send the CCR. In addition, if she is referring a patient to a cardiologist and the ECG is important, she attaches the ECG to the CCR and sends both to the cardiologist in the PDF container.

#### MinuteClinics at select CVS Pharmacies

Perhaps you or your family member have required non-emergent, routine care and visited a MinuteClinic, located inside select CVS Pharmacy stores. Chris Ross, the Chief Information Officer of MinuteClinic, has deployed PDF Healthcare in each MinuteClinic so that once the patient has been treated, the clinician creates a PDF Healthcare-based record of the visit/treatment/diagnosis and provides or electronically sends a copy to the patient. If the patient has a primary care provider, the

PDF Healthcare-based record is faxed or emailed to that provider. In the near future, MinuteClinic will provide the patient's PDF Healthcare-based record digitally to all parties that warrant reception. To date, MinuteClinic has generated hundreds of thousands of PDF Healthcare-based records because of its trust in the security and credibility of the PDF Healthcare container as well as the ubiquity of the PDF reader.

#### Georgetown University Medical Center and Baylor Healthcare Systems

Allan Zuckerman, M.D. and Joseph Schneider, M.D. are with the Departments of Pediatrics at Georgetown University Medical Center (Washington, D.C.,) and Baylor Healthcare System (Dallas), respectively. Both use PDF Healthcare to facilitate the sending and receiving of XML-based, American Academy of Pediatrics' child forms, such as its Emergency Information Forms, as well as summaries of medications, allergies, problems and immunizations. The forms' critical medical data for children with special needs and children in foster care facilitates an electronic, patient-centered, medical home that the parents carry with them. Consequently, the PDF Healthcare "bridge" approach to visualizing data in any XML-based record allows them to populate familiar PDF forms for printing or Web display without having to implement sophisticated user interfaces and applications.

The field of U.S. HIT needs to continue moving forward with incremental progress and improvements rather than waiting for a "perfect" system. PDF Healthcare presents one clinical improvement in secure health information exchange that is right here, right now. |

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<sup>1</sup> PDF is an ISO-ratified, open, international, and published standard, originally created by Adobe Systems, Inc., but now developed and maintained by ISO.

<sup>2</sup> To purchase and download a copy of the PDF Healthcare BPG, go to <http://www.aiim.org/productcatalog/product.aspx?ID=1675>. To download a copy of the PDF Healthcare IG, go to <http://www.aiim.org/standards/article.aspx?ID=33284>. To email AIIM, contact Betsy Fanning at [bfanning@aiim.org](mailto:bfanning@aiim.org). To email ASTM, contact Dan Smith at [dsmith@astm.org](mailto:dsmith@astm.org).

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