DRAFT Safe Practice Recommendations for the Use of Health IT in Patient Identification Using Standardized Attributes and Technology

The draft recommendations limit their focus to *attributes*, the information gathered as well as the available fields to accommodate the acquisition of the information used to identify individual and *technology,* not only new technologies, but additionally ways to utilize existing technologies in facilitating safe patient identification. Areas under consideration by other groups (e.g., National Identifiers, distractions) were not addressed by this workgroup.

A-1 Electronic fields containing patient identification data should consistently use standard identifier conventions.

Rationale: In order to avoid duplicate record creation, to avoid information from appearing in the wrong record, and to facilitate interoperability there needs to be consistent rules and naming conventions to correctly identify and match patients. This data normalization begins at registration and carries throughout the care process as outlined in the Process Map. Typographical errors, misspellings, transposition of information, empty fields or fields with intentional false or null information can cause problems at multiple points downstream from the original entry of information. Having a centralized registration process and standards for capturing information is essential. For example: (1) Capture information using the greatest level of granularity (e.g., include sufficient space for: first name, LAST NAME, and middle initial); (2) Capture this datum in its own field to distinguish items and promote uniform recording of the information (e.g., zip codes, phone number, historical phone number); (3) Use an established standard for hyphenated names (current last or family name and previous last or family names used in combination) allowing adequate space to document this information: Sue Smith Jones, Sue Smith-Jones (hyphen), Sue Smith – Jones (en dashes), Sue SmithJones; (4) standardize the treatment of apostrophes, John O'Rielly, John ORielly.); (5) use legal and not 'common' names (e.g., Robert, not Rob, Bob, Bobby, Robby); and (6) use standard conventions for recording dates of birth MMDDYYYY, January 7, 2013 noting that other conventions are often used in different locals DDMMYYYY, 7 January 2013. Information should then be displayed similarly across applications (e.g., headers, banners, wristbands). Users should not be able to modify these standardized layouts.

Stakeholders: Vendors, Provider Organizations (IT, Leadership, Registration)

Implementation Strategies: Identify what features are available when choosing a system or follow-up with vendor to determine when and if features will become available if they are presently not included; provide training and education, including continuing education especially for those taking part in centralized registration processes; develop appropriate policies and procedures for attribute capture (which attributes, number of attributes, format of attributes) and continued use of data attributes; conduct regular assessments, including monitoring (e.g., the number or percent of records) and correction of any and all records that are duplicates and/or overlaid.*[i]

A-2 Use a confirmation process to help match the patient and the documentation.

Rationale: <u>Attributes, such as a patient's name and date of birth, a patient's initials, a patient's photo, or a patient's medical record number entered and/or viewed at various stages in the care process, used when multiple records are open at the same time, or required in high-risk scenarios aids in the confirmation of a positive patient match, matching the patient to the patient record,</u> report, order, or result. This includes looking at a photo prior to entering an order, having to enter a patient's initials and date of birth in a dialogue box prior to completing documentation after an interruption, or entering a medical record number, initials, and date of birth prior to proceeding in the record. <u>However, it is essential that the appropriate information for this process is readily available and collected in the same format so that the matching process can occur accurately.</u>

Stakeholders: Vendors, Providers, Provider Organizations

Implementation Strategies: <u>Include dialogue boxes that appear at key junctures and require information entry in order to proceed; develop policies and procedures for the collection, use, entry, and re-entry of confirmatory information;</u> provide appropriate training for those entering information into the medical record. *

A-3 Use standard attributes and attribute formats in all transactions to improve matching

Rationale: Poor data integrity is inherent to incorrect identification. <u>Data that is not standardized, is missing or is old will impair correct identification.</u> Matching patient information, whether in a single organization, when trying to gather information about an individual from multiple organizations, or when using a master patient index depends on techniques to acquire, match, and link that information. Information must be in the same format, documented in the appropriate fields, and then appropriately linked. These attributes that can be collected in standard formats include: first/given legal name; current LAST/FAMILY NAME; previous LAST/FAMILY NAME; middle name or middle initial; suffix; date of birth (MMDDYYYY); current address (street address, city, state, ZIP code); historical address (street address, city, state, ZIP code); current phone number (enter all XXX XXXXXXX); historical phone number; gender (M, F, O). This information is necessary to not only avoid duplicate records, but it facilitates the use of the master patient index. Matching techniques can include matching of standardized data attributes, to the more sophisticated <u>machine-matching algorithms (deterministic, probabilistic or natural matching algorithms)</u>. In order to appropriately use these techniques and tools, standardized, accurate, and complete information must be available and this information must then be able to be linked. Note: The workgroup did not provide any recommendations regarding a single national patient identifier as other organizations are working on this project at present.

Stakeholders: Vendors, Provider Organization

Implementation Strategies: Develop appropriate policies and procedures for <u>information capture</u>, use, and <u>verification</u>; conduct appropriate training of individuals capturing information that is later used in linking of attributes or in matching algorithms; implement a <u>centralized registration processes</u> using standardized attributes, and use the standard information from a master patient index throughout all areas of identification. *

A-4 **Use a standard display of patient attributes across the various systems**

Rationale: Information should appear in the same format. Including similar information in the same format across systems allows those looking for identifiers to readily recognize those identifiers in any system. For example, always displaying a photo, LAST NAME, First name, Middle initial (if available), the date of birth in a MMDDYYYY or MM/DD/YYYY, and age enable users to readily recognize that information. However, consideration must be given here to the available space in areas such as wrist bands, banners, headers, and various displays.[1] Additionally, special circumstances that can limit the ability to display the standard information (e.g., such as wristbands on a neonate) should be taken into consideration. While implementing these recommendations organization wide may be an initial strategy, standardization across all systems will better support safety activities.

Stakeholders: Vendor, Provider Organization

Implementation Strategies: Inventory systems to determine the ways that information is currently being displayed; identify which attributes are presently used in the various systems and the formats that they appear (Last name, LAST NAME), identify which systems allow these attributes or their appearance to be altered. *

T-1 **Include distinguishing information enhancing identification on screens, printouts, and those areas for interventions.**

Rationale: Information that can provide distinct visual clues can facilitate accurate identification. For example, the use of photographs in conjunction with other identifiers (e.g., LAST NAME, First name, date of birth) can help to distinguish patients and aid in identification. Photos that can be readily assessed to confirm identification and are current, clear, and distinguishable (no confusion between siblings or those twins or triplets) will help to distinguish individuals. Inclusion of age or gender in addition to names and dates of birth can additionally provide keys to facilitate proper patient identification. Additionally, visual distinctions, such as changes in shading in patient lists and dropdowns and the addition of photos in combination with these other identifiers also allow for more distinct identification and selection.

Stakeholders: Vendor, Provider Organization

Implementation Strategies: Complete an assessment of present capacities: Ask whether the system that is presently being used has the capacity to include photos in patient headers, on patient lists and in dropdowns, or when printing labels. When using photos, consider the recency of the photo, whether it is color versus black and white, the photo size which may impact the performance of older systems, the system's scanning capacities (how are photos being incorporated), and the ability to take photos or to have patients enter photos through portals. Identify ways to make the

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[1] See also Technical Evaluation, Testing, and Validation of the Usability of Electronic Health Records: Empirically Based Use Cases for Validating Safety-Enhanced Usability and Guidelines for Standardization, NISTIR 7804-1 (2015) at http://www.nist.gov/healthcare/usability/upload/NISTIR_7804-1_WERB_10_06_15.pdf

distinguishing information uniform in appearance and readily apparent. Create appropriate policies and procedures regarding the taking, use, and incorporation of photos. Work with internal IT systems and with vendors to capture and transmit the information needed. *

T-2 Integrate new technologies to facilitate and enhance identification

Rationale: New technologies, once appropriately vetted and sufficiently mature, can facilitate accurate and timely identification and continue to help match the appropriate patient with the correct treatment, diagnostic, or other modality or to facilitate patient and record matching from an entry point. Some technologies are no longer new (e.g., barcoding) but have not yet been fully utilized. Barcoding is presently used in labs, blood products and during medication identification, stocking and medication administration. Opportunities to include barcoding in patient identification faces challenges because of the size and area available, the integrity of the barcode and amount of information encoded. Other technologies (e.g., RFID) are expensive, but when selectively used (e.g., blood banking) have shown to contribute to the correct identification. Still other technologies such as vein (palmar) and retinal scanning are still in their infancy. These technologies can also prevent the creation of overlays or duplicate records. As new technologies are tested and become more readily available they may positively impact accurate patient identification.

Stakeholders: Vendor, Provider Organization

Implementation Strategies: Development and revision of appropriate policies and procedures; assess and evaluate technical and workflow barriers prior to adding any new technology; recognize and mitigate the use of possible workarounds, or other implications created by the implementation of any new technology. *

T-3 Implement monitoring systems, to readily detect identification errors

Rationale: In order to readily detect errors in identification before they are propagated, automated systems provide additional checks. These automated systems detect inconsistencies, aid in confirming identities, and reduce error. Monitoring systems can include both proactive and reactive monitors thus avoiding patient misidentification and preventing incorrect procedures performed on a particular patient. Systems that "check digit(s)", identify similar or misspelled names, or those that compare physical characteristics (e.g., comparison of organs and organ size as used in radiology) are just a few of the methods of detection that can then be used to propagate an alert. Systems are available to also automate duplication and overlay detection and identification. Use of these technologies will continue to facilitate and enhance correct identification and the ability to maintain data integrity.

Stakeholders: Provider Organization, Vendor, Providers

Implementation Strategies: Use attribute algorithms and monitoring systems as appropriate; develop protocols and processes for organization surveillance, monitoring and measuring of the frequency of errors (e.g., duplicate record rates, incorrect identification in result reporting) and

measure the improvements seen when effectively using such technologies. Also measure and monitor whether such technologies fail to identify irregularities. *

T-4 Include high specificity active alerts and notifications to facilitate proper identification

Rationale: Readily alerting users when they attempt to (1) create a new record for an individual that has a current record, (2) select an incorrect individual, such as someone with a similar name or name variation (e.g., nickname file, Soundex) or (3) enter a name that may contain errors (e.g., typos, transpositions, misspellings), can be curtailed by the use of actionable alerts. As with other alerts, actions must be appropriately taken by those receiving the alert in order to be effective.

Stakeholders: Vendors, Provider Organizations, Providers

Implementation Strategies: Identify the current duplicate record rate and identification errors and monitor how alerts impact this rate. Develop actionable alerts so that those receiving the alert perform specific actions once such an alert is received. Provide education and training regarding the actions to be taken upon receipt of alerts.*

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i *While policies, procedures, and training are often a crucial first step in implementation, additional efforts may be required to recognize the value of the recommendations.

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