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Questions from the HIT Policy Committee / Information Exchange Workgroup:

General Questions:

1. **What are the technology impediments to the electronic exchange of lab data?**
    a. For lab results, semantic interoperability is required for the exchange to be useful. Most Laboratory Information Systems (LIS) use local coding schemes and configurable test identifiers. The lack of compliance on the part of labs to provide, for example, LOINC coded test results prohibits the comparison and consistent presentation of data from multiple sources in a longitudinal record.
    b. Most EHR systems today do not handle unsolicited results well –rather, they require that the 'order' be placed through the EHR thereby creating a "placeholder" for the corresponding result(s) when they return. Since electronic ordering is lagging significantly behind electronic results delivery, this makes lab results integration with EHRs difficult to administer. Unsolicited results are often put in exception queues for humans to process.
    c. Few lab systems are capable of implementing results exchange using the CDA R2 model (notification of available information followed by an explicit request for retrieval). Some national labs have a similar model in operation today.
    d. Encryption can be a problem. Encryption at the transport layer should be sufficient protection for the data. Encrypting the message itself such that only sender and ultimate receiver can read it will make a number of functions difficult, e.g. routing results to their intended recipients, identifying the patient, automatically monitoring for indications of reportable diseases. It is possible a SOAP style envelope with an encrypted body will permit some functions to be carried out satisfactorily.

2. **What are the business case impediments to the electronic exchange of lab data?**
    a. The absence of an HIE to act as a consolidator. Without this, every LIS must have a one to one connection to every EHR in their medical trading area, which is cost prohibitive. HIEs are in the business of providing connectivity to all and present the notion of a single 'pipe' for both the lab and each HER.
    b. Labs have difficulty addressing (i) physician delivery preferences, and (ii) consumer preferences regarding privacy. An HIE serving a medical trading area can help address these.

3. **What are the operational impediments to the electronic exchange of lab data?**
    a. Failure to identify or reach recipient physicians is a constant problem that requires manual processing of exception queues.

4. **What are the regulatory impediments to the electronic exchange of lab data?**
    a. The insistence that lab data should not be changed before being presented to intended recipients interferes with the use of a standard form of presentation, and translation from local coding schemes to standard nomenclatures.

5. **What is the low-hanging fruit for improving electronic exchange of lab data?**
    a. Let third parties (like HIEs) undertake the distribution functions and leave the labs to perform the tests.

6. **What's a priority to facilitate easier/broader electronic exchange of lab data, even if not immediately actionable?**
    a. Use a common coding scheme or permit/encourage the 'distributer' to convert to a common coding scheme (e.g. LOINC).
    b. Move towards the store, notify and query model for results, rather than delivery.

7. **What best practices would you recommend in this area?**

8. **What work-arounds for these impediments have you experienced/designed/ observed?**

a. Various technical solutions for data enhancement, translation, data mapping, table synchronization, (e.g. local doctor identifiers, result names, placer and filler order IDs, LOINC codes, patient identifiers, etc)

Specific Questions:

9. **Has your State's definition of "authorized person" limited the ability of health care entities to exchange lab data electronically?**

a. No.

10. **How do you, your laboratory or EHR vendor view the requirements set forth in 42 C.F.R. § 493.1291** (Requirement that the test results and other patient-specific data are accurately and reliably sent from the point of data entry to final report destination, in a timely manner)? For example, technical method or visual "eye-ball" inspection of every terminal/interface in an installation to ensure that data is displayed correctly.

a. Maintaining "accuracy" is sometimes interpreted to literally. When a physician is receiving lab results from many sources, it is better to display the results in the same format for all, rather than mimic the specific output of the source laboratory. Having consistent presentation, particularly for abnormal and critical lab data, will lead to fewer errors and omissions. This is what Axolotl's Elysium system does. Perhaps there should be guidelines established to ensure that content is not materially altered, but presentation should be left to the receiving device or system.

b. Monitoring timely delivery is an automated function. However, many LISs release data in periodic batches. Moving to real time delivery will allow for more intelligent monitoring and fewer false alarms (raised because of the absence of recent data).

11. **How do you, your vendor, or State interpret "final report destination?" Does this interpretation hinder the electronic exchange of lab data?**

a. Each provider has a "preferred" mechanism of delivery be that an EHR, postal service address, or fax number. This is regarded as the "final destination". Inadequate identification of recipients will cause results to be placed in exception queues for human review, impacting the efficiency of the exchange. Provider identifiers from both source and receiving systems are maintained in the system (in the case of electronic delivery) to minimize such rejections.

12. **Do you believe that the adoption of a universal compendium/dictionary will reduce costs related to the implementation of lab interfaces and improve electronic exchange?**

a. Yes. A common compendium would simplify ordering but may be difficult to enforce since labs compete on the customization capabilities (per physician) of their panels and order sets.

b. For results standards for test definition should be encouraged/enforced (e.g. LOINC).

13. **Who is best suited to maintain a universal compendium?**
    a. Regenstrief Institute or a similar organization.

14. **What standards, if any, would you recommend for the electronic transmission of lab data?**
    a. For content HL7 Messaging, V2 or 3; For transmission SSL IP.

15. **How do you ensure lab data is transmitted securely and confidentially?**
    a. We use full RSA encryption for server to server connections, VPNs for connections to LISs and SSL encryption for end-user access to data.

16. **What are the obstacles preventing patients from receiving copies of their lab data?**
    a. Lack of agreement among physician and HIOs whether lab results should be sent to patients prior to provider review and comment.

    b. Lack of adoption of PHRs by patients

    c. Lack of security and potential privacy breaches of mailing reports