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This letter is in response to your November 6, 2015 request for feedback on the HMIS Vendor Site[1] regarding exceptions to HUD's intention to require direct data entry into HMIS systems.

First, thank you for your hard work improving connections to other federal programs serving the homeless, and for the much needed effort to continuously refine and clarify the HMIS Data Standard. The purpose of this letter is entirely intended to help that effort along toward its most effective implementation, and we view this intention to require direct data entry as a clear and critical misstep.

By "direct data entry" in your request, we assume that you mean direct data entry into a particular Continuum's single selected HMIS installation. If you do not limit the definition to this, and instead allow for direct entry into another system that communicates in nearly real time with the Continuum of Care's selected HMIS system, it is much less problematic for communities.

But instead of proposing exceptions to a rule, I would like to instead propose a better policy, in order to better achieve your greater and well founded goal of pervasive real time HMIS data entry. A better policy is needed, since I believe the perceived need for direct data entry is based on outdated and erroneous precepts. But first, allow me to enumerate the problems with the intention to require direct data entry.

Problem #1: This decision inhibits communities' need for flexibility, control, and stability
HMIS can be implemented in many ways, by many interconnected systems within a community. HUD HMIS Technical Assistance tends to want to see HMIS as entirely delivered by a core set of national level vendors, but this is neither a flexible, cost effective, nor productive vision. This tendency has caused constant data migration with endless procurement of dissatisfactory single vendor systems, needless duplicate data entry, and wholesale upheaval of legacy community systems. Communities need system stability to keep training and system development costs low and predictable.

Single vendor HMIS systems tend to hold the community data "hostage", since all paths to and

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[1] For reference, the original request was: "We have received a question about direct entry into HMIS and HUD's intent around how we define participation moving forward. At this time, it's HUDs intent to encourage as much to real time data entry into the HMIS systems as possible and to require direct data entry. As HUD completes the HMIS notices we also expect that HUD will allow some specific exceptions to that policy. If you have suggestions for under what circumstances a grantee should be exempt and what timeframe for data export/import would be then reasonable to require Karen would like to receive an email from you clearly stating (in a sentence or two) what you would like to see.".

from the community data require the use of manual or hobbled vendor integration and messaging tools, or require the customer to pay for customizations which break with system upgrades.

The direct data entry request impedes HUD and other federal agencies' ability to work together to improve outcomes and quality of care, better track investment, and reliably report out. Coordination initiatives such as Coordinated Entry Systems (CES), HUD and Veterans Affairs' "Coordinating Healthcare & Housing Resources to End Veteran Homelessness", and the Department of Health and Human Services report "Connecting Health and Care for the Nation - A 10-Year Vision to Achieve an Interoperable Health IT Infrastructure" need data interoperability across funding silos to succeed. The key is to encourage data interoperability, not to limit it by passively waiting for interoperability to sporadically evolve. A move to require direct data entry would only perpetuate the data silo paradigm, requiring interoperability to first be justified as an exception, as opposed to being actively encouraged.

Problem #2: This decision is outdated
15 years ago, before web data sharing was simple and pervasive, the requirement to perform direct HMIS data entry would not have made much of a difference to communities. Direct data entry was synonymous with near real time data sharing, since periodic loading of data between was far too infrequent and technically more problematic.

Technology has moved along with the introduction of web services and robust methods for independently validating data. Open platforms[2] have long enabled third party applications to interact securely and in near real time with a central data store. Open platforms have nothing to do with the problematic HMIS "open sharing system" concept: open platforms can be very closed from a default sharing perspective; they are unrelated concepts. To the point, direct data entry (into a central HMIS system) is no longer synonymous with real time data entry.

In other words, there is no need for a direct data entry rule, but rather perhaps, a near real time requirement is being sought by HUD. This direct data entry notion likely received impetus from initiatives like Coordinated Entry (CES), which means requiring real time interaction between program staff to effectively broker homeless client services. But it is erroneous to equate real time with direct entry into a central system.

We should regulate for future and present realities, not the past. It is real time that is really desired, and direct data entry is not the best way to achieve this. Requiring direct data entry now will force even larger amounts of duplicate data entry, and instead, communities should be putting pressure on their HMIS software providers for standard interoperability features.

Problem #3: It's bad math
No client's needs, nor their associated personal service data, exist entirely within a program silo vacuum. Separate public programs must coordinate via discrete referrals and client consented data sharing, to achieve effective coordinated service. If *n* number of programs require direct data entry into their separate siloed systems (like HMIS), a given community would have to

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[2] See https://en.m.wikipedia.org/wiki/Open_platform.

perform duplicate data entry into n^2 additional systems to fully populate that same data into the other siloed community information systems.[3] And there would be no feasible way for this data to be rapidly populated, so it would be stale, poorer quality data. It is poorer quality given that "studies have reported up to a 26.9 per cent error rate in data transfer"[4] by manually rekeying data. Also, aside from errors, the tedium of rekeying promotes truncating the amount of data transferred. So, it is unreasonable for communities to support direct data entry mandates.

However, the purpose of this letter is constructive. The following represents a path forward, away from impermeable data silos, direct data entry into monolithic systems, and rekeying of data.

Policy Proposal 1: Let's use, not hinder, existing stable technologies

1.1 Build modern web standards, not just simple payload formats
HUD HMIS has been very specific recently about unambiguous data element definitions, and reflecting those in simple payload formats. This is a great start. But it has specified nothing in the way of protocols enabling vendor applications to coordinate using web services in any meaningful sense. This blocks the true portability (given client consent), coverage, self-service features, and community utility HMIS systems could possess. It also keeps beneficial information from non-HMIS sources from coming into HMIS systems, and keeps best-of-breed HMIS software providers from intermingling. For example, report generation, client deduping, report design, user interfaces, could all be provided by different downloaded applications connected within an open platform. It is hardly a dream, but a mature, secure best practice in the technology sector.

1.2 Support communities in their demands for open platform features
HMIS should support communities as they engage software providers, to improve interoperability standards, just as HMIS has begun engaging its federal partners. Software providers won't achieve interoperability on their own; they need communities to require it. Software providers need programming instructions known as Web Application Programming Interfaces (APIs) that are adopted by communities and HMIS systems to make near real time interoperability the norm, not the exception. Web APIs are a pervasive, well understood, and supported technology. There are clear signals of "the growing importance of APIs in our daily lives. ... The consequences of failing to move to API-centric development are as real for individuals as they are for the companies that employ them."[5]

Though HMIS has focused on sharing data at the national level with programs such as the Veterans Affairs' Supportive Services for Veteran Families (SSVF) program and HHS' Runaway and Homeless Youth Management Information System (RHYMIS), efforts are underway to foster data sharing at the community level, such as the White House's September 2015 Smart Cities Initiative announcement.[6] It is at the local level where there is a better view of

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[3] Granted, no program would fully share its records to all other programs, but even a small percentage of rekeying is problematic and discourages program coordination.

[4] See Goldberg et al., Proceedings, American Medical Informatics Association, Annual Symposium November 2008.

[5] http://techcrunch.com/2015/09/27/the-future-of-coding-is-here-and-threatens-to-wipe-out-everything-in-its-path

[6] See

the client's overall context, and we must improve local data sharing, where resources are the scarcest, in order to end homelessness. So the requested feedback could be changed to: "Should HMIS apps be required to accept real time data via APIs?". That said, we still favor communities requiring features through the normal RFP processes which could refer to HUD HMIS guidance on the topic.

Policy Proposal 2: Better collaborative, open standards and policy development

2.1 HMIS policy openness

HMIS has also experienced a deterioration of policy openness. For example, and we're not at all asserting a direct connection, but the publicly posted list of software provider meetings at https://www.hudexchange.info/programs/hmis/hmis-software-provider-forum[7] terminates December 2012, two months after you began work at HUD. I am asserting that we need to be more proactive in this regard, for the benefit of communities and the general public. The current "Vendor Site" is not located on any official HUD web site, is not mentioned in the HUD web materials, requires a login furnished by HMIS TA upon request, and is purportedly for "vendors". This is far from open and public. It would seem that openness and transparency is not a prime concern of the current HMIS administration, despite the growing calls for open government. This is 3 years after the President and OMB's 2009 Open Government Directive calling for "unprecedented level of openness in Government."[8] Additionally, the Federal Register posting process inviting public comment for any HMIS data standard change his been replaced with more frequent interim administrative notices that avoid this full public posting and comment/review process. The need for this rapid pace indicate reactive and ad hoc decision making, as opposed to predictable, and inclusive deliberation. Generally speaking, one private decision or posting has a ripple effect into any subsequent decision based upon it, so it's important to default to open government.

Case in point, even this request for data entry feedback was posted only to the Vendor Site listserv, and not more appropriately made directly to communities that would be most impacted by this. Software vendors are only the agents of communities they serve, and all communication should go through community representatives, which then convey these HMIS requirements to their vendors. HUD TA, and HUD itself, have leap-frogged the normal sequence of contractual communication by discussing changes first directly with the vendors.

2.2 HMIS work product openness

Another question and related proposal: are we using public funding to really demonstrate successful software and reporting approaches, and fostering improved technology across the board? Or, is the HMIS program simply supporting a curated set of system vendors which are not interoperable? For example, if the HMIS Data Lab is a publicly funded reference system for HMIS system developers, shouldn't it be available as a resource to communities? Also, are the copyrights for any software which HUD licenses amenable for government reuse and

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http://www.whitehouse.gov/blog/2015/09/16/launching-smart-cities-initiative-tackle-city-challenges-innovative-approaches.

[7] The former "software providers" term is a more appropriate than the current use of "vendor", since an HMIS system is not required to be sold to customers to be in compliance. An HMIS could be built by a municipality, crowdsourced, etc..

[8] See https://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment.

modification, so that one vendor's intellectual isn't being inadvertently subsidized directly?

One project I have been fortunate to work on for HUD HMIS, as a simple and effective example of open software standards development, is at https://github.com/hmis-interop. Issues can be submitted by anyone in the World and further discussed, issue resolution is organized by milestone release, and proposed fixes address specific issues. Versions are deliberate and expected, and each change is published and tracked on a timeline. Interoperability protocols, and even the HUD Data Dictionary and Manual and standards should follow this same process to improve collaboration and transparency.

I hope that the topics and supporting arguments brought forth in this document are well received. It is not meant at all as a criticism, but as a proposal which looks back at past lessons to partially support its assertions. Please feel to contact me if you have any questions regarding the proposals, and how to achieve them in more detail.

Sincerely,

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