CALREDIE GUIDANCE ON PERSON VERSIONING AND MULTIPLE DEMOGRAPHICS

Version 19

Updated May 5th, 2022

Table of Contents

Note: All screenshots in this document were taken of fake patients from a CalREDIE testing environment. Example addresses are either fake or non-residential.

Key Takeaways

1. Versions exist to preserve different iterations of patient information as it relates to distinct Incidents at different points in time.
2. Every person in the CalREDIE system will have exactly one Current Version and can have 1+ Non-Current Versions.
3. Every Disease Incident has to associate with a Person Version.
4. The Patient Record is linked to the Current Version.
5. Multiple Demographics preserve multiple iterations of patient information within a Patient Record, which can be swapped as primary / secondary demographics in the Current Version.
6. Multiple Demographics is most useful for preserving two or more iterations of concurrently-true information for an Incident.

Part 1: Person Versioning

First, What is a Patient Record?

The Patient Record is the singular CalREDIE record, represented by a Patient ID, that contains all Versions, Roles[1], Associations[2], and Incidents for a person. The Patient Record is accessible throughout CalREDIE by clicking the icon of the person in the blue shirt 👤, and always displays the patient demographic information of the Current Person Version (Figure 1).

Figure 1. A snippet of the Patient tab

So, What is a Person Version?

The simplest definition of a Person Version is: "An iteration of patient information, relevant to a given Incident or Incidents, that belongs to a Patient Record."

Imagine that James "J.R." Test gets Salmonellosis when he lived in Sacramento, and then gets Chikungunya when he lived in Citrus Heights (Figure 2). We wouldn't want the Chikungunya Incident to have the Sacramento address, because it isn't relevant for that Incident, but we still want it for the Salmonellosis Incident, even though it's not current. Versioning is the solution that allows us to make sure that the right address in displayed in each Incident, all while retaining all of a person's Incidents within a single Patient Record which displays the most up-to-date information available.

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[1] The three CalREDIE roles are: patient, contact [to an Incident], and family member [of a patient]. Each person in the CalREDIE Master-Person Index should have at least one role, but can have any combination of the three.
[2] Patients and Incidents with some relation to the person in question (i.e. family members and contacts).

Role(s)	Patient ID	Name (Last, First)	DOB	SSN	MRN	Address	Current
P	6092338	Test, J.R.	01/01/1980	XXX-XX-8888	View...	1616 Capitol Ave, 25, Sacramento, CA, 95814	N
P	6092338	Test, James	01/01/1980	XXX-XX-8888	View...	6041 Sunrise Blvd, 14C, Citrus Heights, CA, 95610	Y

‹ PREV | NEXT ›

☐ Historical Jurisdiction Access

Type	ID	Disease/GE Type	Jurisdiction	Date Created	Pro/Res Status	User	Mark for Merge/Split
DI	6122338	Chikungunya Virus Infection	Sacramento	08/13/2019	Entered/ Suspect	Chavez, Sebastian	☐
DI	6122336	Salmonellosis (Other than Typhoid Fever)	Sacramento	08/13/2019	Entered/ Suspect	Chavez, Sebastian	☐

Figure 2. The current and non-current person versions for Test, James

Each time a new Incident is created for an existing patient by a user in CalREDIE and the user makes a change or addition to the patient's demographics, the user will be prompted to either create a New Version or make a Correction to the existing Version. This decision determines how patient demographic information is preserved and modified over time.

Current and Non-Current Versions

Every Patient Record in the CalREDIE system will have exactly one Current Version, understood to be the most up-to-date information available for this person. This Version can be associated with 0-infinity[3] Incidents, and—with few exceptions—is always associated with the most recent Incident. However, persons in the CalREDIE system might also have one or more *Non-Current Versions*, which are historic iterations of patient information. These can be associated with 1-infinity Incidents. **Whatever is in the Current Person Version will appear in the Patient Record, and modifications to the Patient Record act as modifications to the Current Version, as well as to all incidents associated with the Current Version.**

Every Patient Record in CalREDIE will have exactly one Current Version.

Creating a New Incident with Demographic Changes

When a new Disease Incident is created for an existing Person and there is a change to one or more of the demographic fields on the Patient Tab, the user will be presented with a pop-up after attempting to Save or Submit (Figure 3). This pop-up states that the demographic information has changed, and the user must select an Action ❶ to reconcile this discrepancy.

The user can use the +/- icon ❷ to expand/minimize a list of changes, showing both the Original ❸ and Modified ❹ information for the purposes of comparison. The upper navigation buttons ❺ allow the user to scroll across multiple pages of changes to that record, and to change the number that display at once. The lower navigation buttons ❻ allow the user

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[3] Persons that exist only as contacts or family members in the Master Person Index will have a Current Version without any associated Incidents.

to scroll across multiple pages of records that have been modified, and is only applicable when modifying multiple records at once.
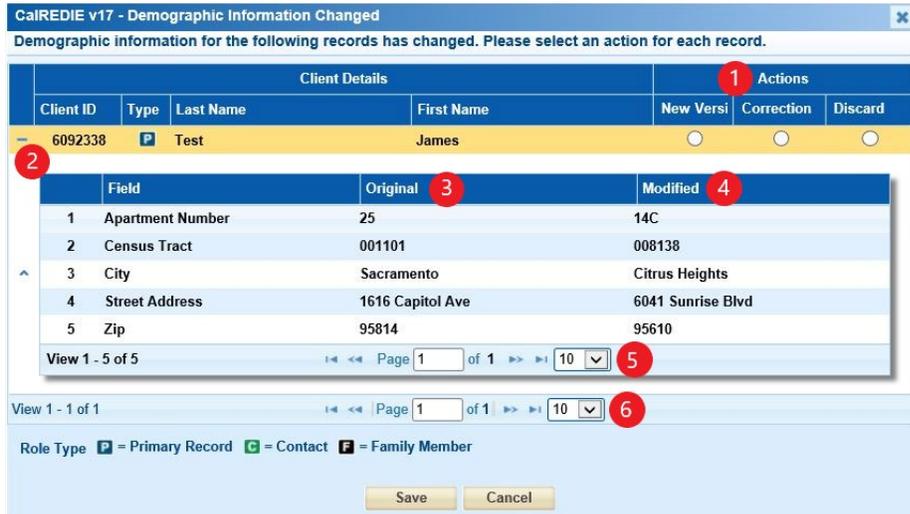

Figure 3. The Demographic Information Changed pop-up showing the changes between the demographic fields for James Test

Explanation of Actions

New Version

Selecting *New Version* will create a new Current Person Version with the modified information and associate it with that Incident. All other Incidents will be unaffected, and the previous Current Version will become a Non-Current Version.

Appropriate Use of New Versions

1. Any changes where a reasonable person could conclude that the original information was, at one point, true.

Correction

Selecting *Correction* will overwrite the original demographic information on the Patient Tab and replace it with the modified information you entered. Note that this applies to all Incidents associated with that Person Version, not simply to the Incident in which you are working. Only use for true corrections.

Appropriate Use of Corrections

1. Misspellings and typos, when the correct spelling/transcription is known.
2. Filling in missing information, e.g. updating Race from "Unknown" to "Asian", adding an email address, adding a cell phone number.
   a. Note: "Other" is considered a completed Race.
3. Other corrections when:
   a. You are certain it is acceptable to overwrite information for the Incident, **and**

b. You are certain there are no other Incidents associated with that Version which might be negatively impacted by your decision.

Selecting *Discard* will delete all the modifications made and use the original information of the Current Person Version. This has the same effect as simply not making any modifications on the Patient Tab in the first place.

Modifying a Version

In previous CalREDIE releases, updating a disease incident's Patient Tab would serve as a correction to the Patient Tab of any incident sharing that Person Version. As of February 2022, however, users are now prompted in these situations to either create a New Version or make a Correction to the existing version, whenever there are multiple incidents associated with that Person Version. This is the same prompt seen as when creating a new incident, as per the previous section. This means that users can now freely modify the Patient Tabs of historic incidents without worrying about negatively impacting patient data elsewhere.

When users modify an existing incident and choose to create a New Version, this will split the incident off from a shared Person Version onto its own Version. The edits made to that incident will not apply to any other incidents. However, if users choose to make a Correction, those edits will apply to all disease incidents that share that Person Version.

How Person Versions Appear in CalREDIE

Identifying Versions in Person Search

Looking to Figure 4, each Version of "Ronald Test-Example" exists in the CalREDIE Master-Person Index (MPI)[4] and is represented as a unique row in the Patients grid ❶; the Current Version is represented with a letter "Y" in the **Current** column, Non-Current Versions with a letter "N" ❷. All versions of the same person will have the same **Patient ID** ❸. Selecting any Version of the same person in the Patients grid will show all Incidents associated with that person, regardless of Version, in the Incidents grid below ❹.

To see all versions associated with a person, you must search by **Patient ID** ❺. This is because each Version can have variations in demographic information: searching for all versions of "Ronald Test-Example" by **Name** will not bring up versions of that person under a different name spelling ❻. To only show Current Versions in your search results, uncheck ***Show All*** ❼.

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[4] The Master-Person Index is the searchable database of people in the CalREDIE system. It is accessed either from the Person Search screen or the Jurisdiction Review screen.

Figure 4. The four different person versions for Ronald Test and the corresponding disease incidents for each person version

Even though Ronald has five Incidents, Ronald has only four versions because his demographic information (most importantly, his address) has changed only four times. In one case, Ronald's demographic information had not changed from the most recent information on file, so there was no need for a new Person Version. But since a new Person Version **was** created every time Ronald moved, each of his Disease Incidents is tied to the correct address.

Note: Versions and their corresponding Incidents have been highlighted in Figure 4 above in like-colors for demonstration purposes; however, in practice there is no way to tell which Incidents belong to which Version without opening each Incident.

See *Index A: Proper Use of Versioning & Corrections* for a representation of how effective use of person versioning correctly preserved Ronald's Disease Incident history. If a new Person Version had not been created each time Ronald changed demographic information, and the Correction option was used instead, all of his Disease Incidents would be tied to the most recent address, as shown in *Index B: Improper Use of Corrections*.

Identifying Versions in an Incident

Person Versions can also be seen from within a Disease Incident, by clicking the *Version History* icon in the taskbar. This will open a pop-up with all versions for the patient, regardless of the Incident you are presently working in.

Creating a New Person Version from a Contacts (system) Entry

The Contacts (system) Section links to Patient Records, not to Versions. Every patient linked to an incident will always display the Current Person Version of the linked person.

If changes need to be made to the demographics in a Contacts (system) entry, simply modify the demographics as needed. Upon saving the incident, you will be prompted to review the modifications, and to either create a New Version of the person with these updated demographics, Correct the demographics of the Current Version, or Discard your changes.

Note that this prompt will not appear if the current person version is only associated with a Contact, and not an incident. See the Creating a New Incident with Demographic Changes section earlier in this document to learn more about the prompt.

Alternatively, you may convert the Contacts (system) entry into a Disease Incident, and then modify the demographics on the new incident's Patient Tab. To convert a Contacts (system) entry into a Disease Incident, follow the steps below. Note: For additional information on the Contacts (system) section, see Section 8 of the **CalREDIE User Guide**.

1. Leave the demographics in the Contacts (system) entry unchanged.
2. Convert the Contacts (system) entry into a Disease Incident by clicking the ***Create Incident*** button (Create Disease Incident).
3. If a dialog box appears asking "Do you want to create a new Version of the person?", select ***Yes***.
   a. This dialog box will only display if the Person/Contact is already associated with a Disease Incident.
4. Make any needed changes to the demographics within the new Disease Incident.
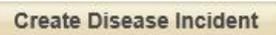
Family Members Section and Person Versioning

The Family Members Section observes the same rules as the Contacts (system) Section as it pertains to person versioning, with the exception that Disease Incidents cannot be created from the Family Members Section. Like Contacts, edits made to a Family Members entry modify the Current Person Version; only additions and true corrections should be made.

Person Versioning and Chronic Disease Conditions

Each Person Version needs to be associated with one or more Disease Incidents, otherwise it ceases to exist in the CalREDIE system[5]. This presents a problem for patients of chronic disease conditions: because chronic cases are tracked within a single Disease Incident over the course of surveillance and treatment, it is not possible to utilize person versioning to track

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[5] There are some exceptions to this, such as when ***Create New Person Version*** is selected as the import criteria in the DISA when importing a record into an existing Incident.

demographic changes to the patient over time without effectively overwriting the previous Version with each update.

Multiple Demographics—covered in the next section—allows users to add new addresses and identities as they change over time, and to assign new information as primary without erasing valuable historic data for the person/Incident. See the Multiple Demographics subsections below, *Adding a New Identity* and *Swapping the Primary and Secondary Identities*.

Part 2: Multiple Demographics

What are Multiple Demographics?

Multiple Demographics is the term we use to refer to both the Multiple Identities and Multiple Addresses sections on a Patient Tab. They are similar to Person Versions, but with a few key differences. Like Person Versions, they also help to keep track of multiple iterations of patient information. But while the Current Person Version is simply the Version which was created most recently, Multiple Demographics allow users to toggle between different identities and addresses, making one or another the *Primary Identity* of the Current Version as needed. While Multiple Demographics are shared and visible across all versions of a person, modifications (additions, deletions, swaps, edits) are disabled in Non-Current Versions.

Multiple Demographics are meant to serve two purposes:

1. Track concurrently-true conflicting information[6] for acute and chronic Disease Incidents.
    a. E.g. two addresses, one residential and the other is for mail
2. Track temporally-true conflicting information[7] for chronic Disease Incidents.
    a. E.g. two addresses, both residential but one 2010-2015, the other 2016-2019.

Figure 5. The Multiple Identities button versus the Multiple Addresses button on the patient tab

Multiple Demographics are accessible from the Patient Tab of an Incident (Figure 5). Multiple Identities is accessible by clicking on the pop-up button next to **Age/Months/Days**, whereas Multiple Addresses is accessible via the pop-up button next to **Zip**. These pop-up buttons are absent in the Patient Record. **Note that the Demographics added, deleted, edited, or swapped in either of these sections apply to *all Incidents of the Current Version*.**

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[6] "2+ pieces of conflicting responses to the same demographic query that are both true at the same time."
[7] "2+ pieces of conflicting responses to the same demographic query that are both true, but not at the same time."

How Do You Search by Multiple Demographics?

By default, CalREDIE only searches the Primary Identities and Addresses when conducting a Person Search. You can expand your search to include Multiple Identities and Addresses by checking off **Additional Demographics** on the Person Search screen. (Figure 6)

Figure 6. The "Additional Demographics" check box marked

Multiple Identities

The Multiple Identities Section tracks multiple iterations of patient demographic information, excluding addresses. It can keep identities of different types (e.g. alias vs. prison name), as well as identities relevant to different time periods (Figure 7).

Fields of the Multiple Identities Section

Identity Type

A required field for all identities created in Multiple Identities, specifies how this identity should be understood.

Primary Identity

Checking this box swaps out the demographic information on the Patient Tab with the information from the selected Identity, and consequently changes the searchable Version information in the MPI. The previous Primary Identity becomes a non-primary, or secondary, identity. The primary demographic information represents the Version in much the same way that the Current Version represents the Patient.

Inactive

Checking this box makes this identity unsearchable when using the **Additional Demographics** checkbox on the Person Search screen, and hides it from the Multiple Identities screen. Inactive entries can be shown by clicking the **Show All** checkbox at the top of the Multiple Identities screen.

From Date / To Date

The date range when this information was relevant/applicable. Particularly useful for tracking patient demographic changes in chronic Disease Incidents.

Figure 7. The Multiple Identities section showing two identities for James Test

Multiple Addresses

The Multiple Addresses Section tracks multiple iterations of patient address information. It can keep different types of addresses (e.g. mailing vs. residence), as well as addresses relevant to specific time periods (Figure 8).

Fields of the Multiple Addresses Section

Address Type

A required field for all addresses created in Multiple Addresses, specifies how this address should be understood.

Primary Address

Checking this box makes the selected Address into the visible information on the Patient Tab, and the searchable Version information in the MPI. The previous Primary Address becomes a non-primary, or secondary, address. The primary demographic information represents the Version in much the same way that the Current Version represents the Patient.

Inactive

Checking this box makes this address unsearchable when using the **Additional Demographics** checkbox on the Person Search screen, and hides it from the Multiple Addresses screen. Inactive entries can be shown by clicking the **Show All** checkbox at the top of the Multiple Addresses screen.

From Date / To Date

The date range when this information was relevant/applicable. Particularly useful for tracking patient demographic changes in chronic Disease Incidents.

Figure 8. The Multiple Addresses section showing two addresses for James Test

Steps to Add a New Identity

1. Open an Incident associated with the Current Version of its Patient.
   a. Note: Opening an Incident associated with a Non-Current Version will not allow you to add, delete, modify, or swap Identities.
2. Click the *Multiple Identities* pop-up button on the Patient Tab.
3. In the pop-up, click *New*.
4. Fill out as much information as possible, including information already included in the Primary Identity. **Identity Type**, **Last Name**, and **First Name** are required.
5. Click *Save*, then *Close.*

Steps to Swap the Primary and Secondary Identities

1. Open an Incident associated with the Current Version of a Patient which itself already has 1+ secondary Identities. For practice, use the same Incident as above.
2. Click the *Multiple Identities* pop-up button on the Patient Tab.
3. Select the row for a secondary identity by clicking the **Last Name**.
4. Check the **Primary Identity** box.
5. Click *Save*, then *Close*.
   a. The demographic information on the Patient Tab will swap to now show the information for the new Primary Identity.
6. Click *Save* on the Patient Tab.

7. Return to the Person Search screen and enter the name of the new Primary Identity in the **Name** field. Click *Find*.
   a. You will now see the information for the new Primary Identity (formerly Secondary Identity) in the search results.
8. Search for the name of the new Secondary Identity (formerly Primary Identity).
   a. No results should appear.
9. Check the **Additional Demographics** box (☑ Additional Demographics), then click *Find* again.
   a. The Person Version should now appear in the search results, but displaying the demographics of the new Primary Identity.

Adding a New Address

Follow the instructions in the *Adding a New Identity* section above, replacing the name fields and search parameters for the address.

Swapping the Primary and Secondary Addresses

Follow the instructions in the *Swapping the Primary and Secondary Identities* section above, replacing the name fields and search parameters for the address.

Versioning, Multiple Demographics, and the DISA

The vast majority of Incidents created in the CalREDIE system are generated by Electronic Lab Reports (ELR) and Provider Portal Web Reports (PP). These records are either auto-imported into the CalREDIE system[8] or are manually processed into CalREDIE from the Disease Incident Staging Area (DISA), where users decide the particular import criteria to be used. A significant part of this process involves the reconciliation of patient demographic information on the incoming record with patient demographic information for that person already in CalREDIE. See the **CalREDIE DISA Guide** on the CalREDIE Help website to learn more about the consequences of different Import Options on patient demographics.

FAQ

What if I have a demographics change but I am not creating a new Disease Incident?

The Demographics can be added to the Multiple Identities and Multiple Addresses sections of the relevant Incident. This is particularly useful for tracking demographic changes in chronic conditions. Time period of Residency can be tracked in these pop-ups. You can then choose to make this the Primary demographic information, which will populate it on the Patient Tab while

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[8] The auto-processed disease conditions are, as of May 2022: Novel Coronavirus 2019, Coronavirus Disease 2019 – Non-positive ELR, Coronavirus Disease 2019 – Serology Result, Influenza – Non-positive ELR, Chlamydia, Gonorrhea, Campylobacteriosis, Giardiasis, Coccidioidomycosis, Chronic Hepatitis B, Chronic Hepatitis C, and Tuberculosis (IGRA). These disease conditions have algorithms which make decisions about data reconciliation.

keeping the previous demographic information safely stored. Alternatively, you may overwrite the data on the Patient Tab.

Why am I not getting the New Version/Correction/Discard prompt?

The New Version/Correction/Discard prompt will only appear in the following situations:

1. A new Disease Incident is created for an existing Patient Record and at least one demographic field was changed on the Patient Tab, or
2. An existing Disease Incident's Patient Tab is modified, and that Disease Incident shares a Person Version with at least one other Disease Incident.

In either case, if no modifications were made to the Patient Tab, there is no reason to create a New Version, there is nothing to correct, and there are no modifications to discard.

Index A: Proper Use of Versioning & Corrections
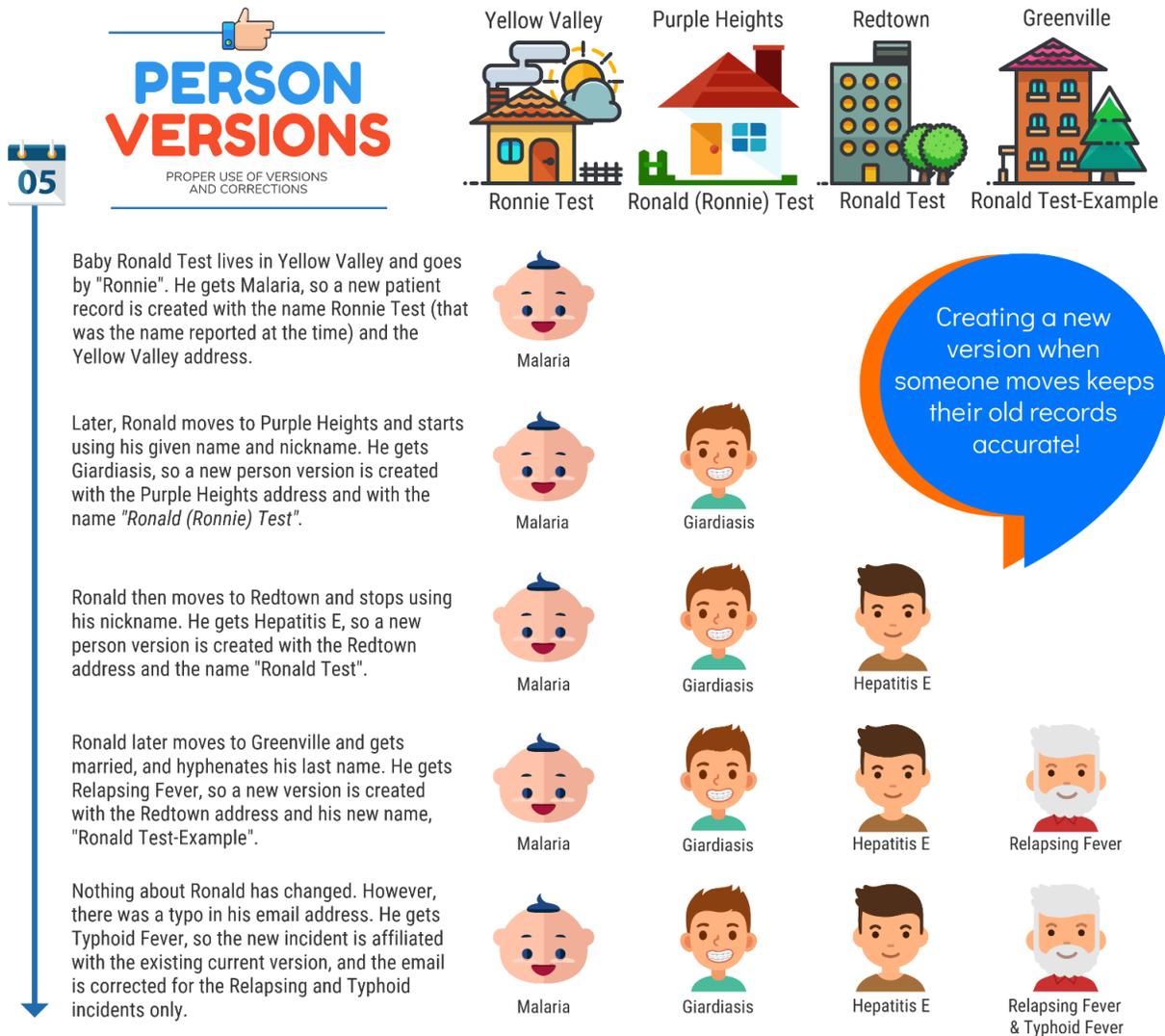
PERSON VERSIONS

PROPER USE OF VERSIONS AND CORRECTIONS

05

Yellow Valley — Ronnie Test

Purple Heights — Ronald (Ronnie) Test

Redtown — Ronald Test

Greenville — Ronald Test-Example

Baby Ronald Test lives in Yellow Valley and goes by "Ronnie". He gets Malaria, so a new patient record is created with the name Ronnie Test (that was the name reported at the time) and the Yellow Valley address.

Malaria

Creating a new version when someone moves keeps their old records accurate!

Later, Ronald moves to Purple Heights and starts using his given name and nickname. He gets Giardiasis, so a new person version is created with the Purple Heights address and with the name *"Ronald (Ronnie) Test"*.

Malaria — Giardiasis

Ronald then moves to Redtown and stops using his nickname. He gets Hepatitis E, so a new person version is created with the Redtown address and the name "Ronald Test".

Malaria — Giardiasis — Hepatitis E

Ronald later moves to Greenville and gets married, and hyphenates his last name. He gets Relapsing Fever, so a new version is created with the Redtown address and his new name, "Ronald Test-Example".

Malaria — Giardiasis — Hepatitis E — Relapsing Fever

Nothing about Ronald has changed. However, there was a typo in his email address. He gets Typhoid Fever, so the new incident is affiliated with the existing current version, and the email is corrected for the Relapsing and Typhoid incidents only.

Malaria — Giardiasis — Hepatitis E — Relapsing Fever & Typhoid Fever

Looking at Ronald's record, we can see that each of his incidents is tied to the version of Ronald that was correct at the time he got sick; we kept an accurate record of Ronald and his reported incidents over time. We end up with 1 patient, 4 versions, and 5 incidents.

Figure 9. Infographic of how person versions are correctly created

Index B: Improper Use of Corrections

PERSON VERSIONS
USING THE "CORRECTION" OPTION EVERY TIME

05

Yellow Valley	Purple Heights	Redtown	Greenville
Ronnie Test	Ronald (Ronnie) Test	Ronald Test	Ronald Test-Example

Baby Ronald Test lives in Yellow Valley and goes by "Ronnie". He gets Malaria, so a new patient record is created with the name Ronnie Test (that was the name reported at the time) and the Yellow Valley address.

Malaria

Correcting the existing version every time will overwrite historic patient information with new information, negatively impacting old cases.

Later, Ronald moves to Purple Heights and starts using his given name and nickname. He gets Giardiasis. Instead of creating a new version, we do a correction, and now both cases are under "Ronald (Ronnie) Test" at the Purple Heights address.

Giardiasis & Malaria

Ronald then moves to Redtown and stops using his nickname. He gets Hepatitis E. Instead of creating a new version, we do a correction, and now all three cases are under "Ronald Test" at the Redtown address.

Hepatitis E, Giardiasis, & Malaria

Ronald later moves to Greenville and gets married, and hyphenates his last name as Test-Example. He gets Relapsing Fever. Instead of creating a new version, we do a correction, and now all four cases are under "Ronald Test-Fake" at the Greenville address.

Relapsing Fever, Hepatitis E, Giardiasis, & Malaria

Nothing about Ronald has changed. However, there was a typo in his email address. He gets Typhoid Fever, so the new incident is affiliated with the existing current version, and the email is corrected across all five incidents.

Typhoid Fever, Relapsing Fever, Hepatitis E, Giardiasis, & Malaria

Looking at Ronald's record, it now appears that he lived at his Greenville apartment and went by Ronald Test-Example at the time of all five disease incidents, which isn't true.

Figure 10. Infographic of how person versions are incorrectly created