

# Missing NPI Lookup Tool

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Several healthcare companies deal with missing data such as NPI on a regular basis. NPI is an identifier for providers that is necessary to submit to facilitators such as CMS to get reimbursement payments back to the healthcare companies doing the submission. Missing several NPIs could mean missing reimbursements and lower submission rates. This tool developed with Python uses the API from the NPPES NPI registry to lookup missing NPIs in real time.

## Name + State

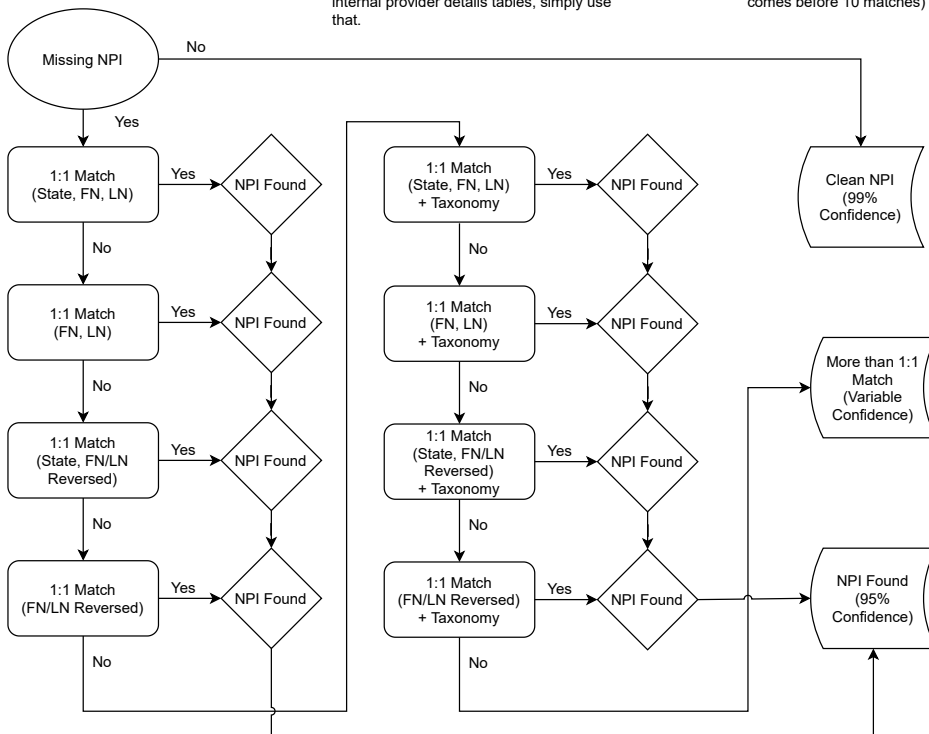
Most common cases of missing NPI include coding issues which could be resolved by doing a first name, last name, and provider state match in the NPPES NPI registry. First Name and Last Name may be switched as well. Other identifiers such as phone number could be used.

## + Taxonomy / DXs

For the cases where there are multiple name/states combinations during a lookup, we can narrow down by using the taxonomy code vs common DX captured. For common DXs, take the top 5 unique DX codes per taxonomy across all health plans. If taxonomy is already available in internal provider details tables, simply use that.

## More than 1:1 Match

For the cases where there are more than 1:1 Match, we will store these records in a table ordered by smallest matches to largest matches. (i.e. 2 matches comes before 10 matches)



## Proceed with % confidence

Assuming that previous matches are 95% accurate, (p-value = 0.05), we can proceed with adding records that are possibly correct. If we follow compliance department's guidelines of an example of 98.0% correct NPI submission, we can add records accordingly from the "More than 1:1 match" in descending order.

## Example Calculation

For example, if we have 100,000 unique correct NPIs submitted (99%) and 10,000 corrected NPIs (95%) using the previous flow-chart, we will have an assumed 98.6% batch of accurate NPIs.  $(100,000 \text{ correct NPIs} \times 95\% \text{ accuracy}) / (110,000 \text{ total NPIs}) = 98.6\% \text{ accurate batch.}$

## Proceeding or Stopping

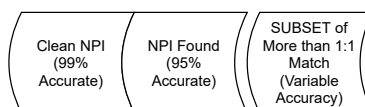
If our batch is above the threshold for compliance regulation of correct NPI submitted, for example, 98.0%, we can continue to add assumed NPIs from the "More than 1:1 match" in descending order until we hit exactly 98.0% accurate batch.

## Example Calculation

If we have a 1:2 Lookup vs NPI match, we have a 50% chance of accuracy. If we have a 1:5 match, we have a 20% chance of accuracy. Although this might seem straightforward, there may be issues with the NPPES NPI registry so we assume that it is still 95% accurate with our lookup assumptions. So for a 1:2 match, the accuracy rate is going to be assumed to be  $(50\% \text{ hit-rate} \times 95\% \text{ accurate}) = 47.5\% \text{ accurate}$

## Example Calculation

We keep on adding to our NPI match list from our "More than 1:1 Match" table until we hit the 98.0% threshold. Example:  $(110,000 \text{ NPIs} \times 98.6\% \text{ accuracy} + (1,000 \text{ NPI} \times 47.5\% \text{ accuracy} + 500 \text{ NPI} \times 31.7\% \text{ accuracy})) / \text{Total}$ . A simple calculation could be used here:  $((110,000 \text{ NPIs} \times 95\% \text{ accuracy}) + (X \text{ NPIs} \times Y\% \text{ accuracy})) / \text{Total NPIs} = 98.0\% \text{ accuracy}$ . We already know what X is by the count of our "More than 1:1 Match list". We simply have to solve for Y which gives us the average accuracy rate needed to reach threshold



Divided by Total Records = % Accurate NPIs