Autocoding tools - approaches and Pitfalls

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Autocoder

- Autocoder vs Dictionary Browser
- Benefits
- How they work
- Key features
- Upversioning
- Challenges
- Conclusions

Autocoder vs Dictionary Browser

Dictionary Browser

- ✓ Stand alone
- ✓ Simple searches
- ✓ Complex searches
- ✓ Cannot automatically link a verbatim to a term
- ✓ No automatic growth of synonym list
- ✓ No upversioning

Autocoder

- Simple searches
- Complex searches
- Links a verbatim to a term
- Synonym list can enhance coding rates
- Coding dependent on data types
- Automation of upversioning process
- May be integrated in database

Benefits of autocoder

- Integrated with clinical or safety database
- Efficiency of coding
  - Code unique verbatim only once
    - Removal of duplicate terms
  - Consistency of coding
    - Across studies and therapeutic areas
    - Across databases
  - Synonym lists
    - Increase autocoding
    - Ensure consistency
    - Provide examples to help manual coding

How they work

- Direct dictionary match
- Direct synonym list match
- Removal of “drop words” (eg “the, “and” etc) and look for direct match
- Use synonym list to swap words – eg cardiac – heart
- Look for contains match
  - Of all words
  - Just one word
- Results may be ranked
- Some autocoders allow coding at less than direct match

Key features

- Direct dictionary matches should be automatically coded
- Synonym list matches should be automatically coded
  - Ensure consistency of coding
  - Terms on synonym list
- Duplicates should be removed (don't code the same term multiple times)
- Suggestions for coding should be displayed
  - Based on algorithm
    - Swap words
    - Drop words

Upversioning

- Impact analysis
  - Review of changes – MVAT and MSSO Change report
- Applying changes
  - Apply new hierarchy
  - Recode new direct hits
  - Recode non-current changes
  - Better matches

Challenges

- Careful selection of the verbatim - concise
- Only direct matches should be automatically accepted – but everything should be reviewed
- Specific rules for some fields/data types – eg investigations
- Medication errors particularly challenging
- Autocoding tools do not replace highly skilled coders
- Medical judgement is always required

Some examples where autocoders fail

Verbatim	Autocoder suggestion
Contrast agent for coronary angiogram	*No hits*
No cardiac disorder	Cardiac disorder (NOS)
Normal faeces	Abnormal faeces
failure heart right	Failure heart left
blocked ear	Blocked tear duct
Ear disorders	Heart valve disorders
Cardiac heart disease	Malposition of heart and cardiac apex

Commercial tools

- http://www.meddra.org/how-to-use/tools/commercial-tools

Conclusion

- Autocoders increase efficiency of coding
- Autocoders ensure consistency of coding

- But
  - cannot replace skilled coders
  - cannot interpret rules for coding
  - cannot code narratives or long verbatims

- New technologies will change this in the future