Deliverable 2 – Health Analytics Project Design

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CS-6440 – Introduction to Health Informatics

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# Clinical Question

Do patients that have been treated with Anagrelide have a higher risk of cancer, compared with a more conventional alternative, Hydroxyurea?

Note that in Deliverable 1, the clinical question was:

In patients undergoing treatment for thrombocythemia, does those that have been treated with Anagrelide has a higher risk of thrombosis, compared with a more conventional alternative, Hydroxyurea? However, the total number of concept records for such clinical question is limited. Thus, another valid clinical question is needed for this deliverable.

One of the driving force for the development of Anagrelide is that Hydroxyurea has been reported for being related with cancer risk. For example, Nand et. al. reported that hydroxyurea has 1–5.9% risk of causing leukemic transformation (Nand, Stock, Godwin, & Fisher, 1996). Hanft et. al. further suggested that in vivo hydroxyurea exposure could cause acquired DNA mutations (Hanft et al., 2000). Thus, whether such suggestions against hydroxyurea is reasonable, and whether the alternatives thereof, such as Anagrelide, could perform better in cancer risk, will need to be investigated.

# Concept sets

* [hxia40] anagrelide

<http://gt-health-analytics-1.us-east-1.elasticbeanstalk.com/#/conceptset/456/details>

The codes for Anagrelide is found from the ICD-10-CM code, which used to specify a diagnosis of long term (current) use of antithrombotics/antiplatelets, which is Z79.02 ("2020 ICD-10-CM Diagnosis Code Z79.02," 2020). Using this ICD code, I found the concept ID for the corresponding drug, Anagrelide, on Athena.

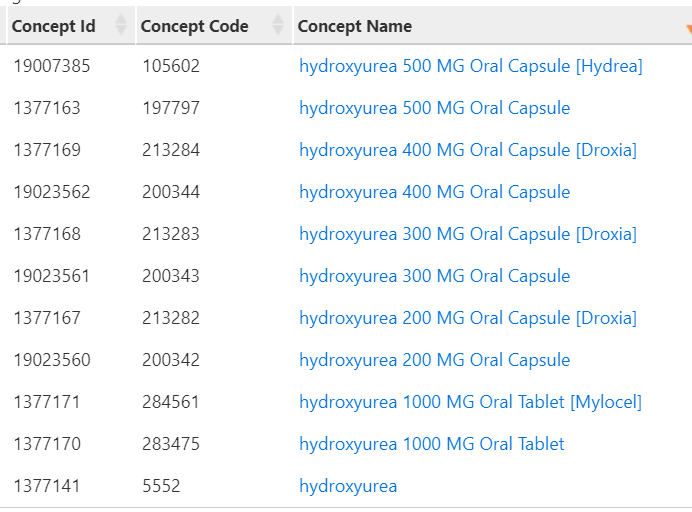


The expression JSON is attached as Appendix 1.

* [hxia40] hydroxyurea

<http://gt-health-analytics-1.us-east-1.elasticbeanstalk.com/#/conceptset/459/details>

The code in anatomical therapeutic chemical (ATC) drug classification system for hydroxyurea is L01XX05, which can be found is this reference ("DRUG: Hydroxyurea,"). Using the ATC code, I then found related drug in Athena, followed by choosing related concepts in Atlas.

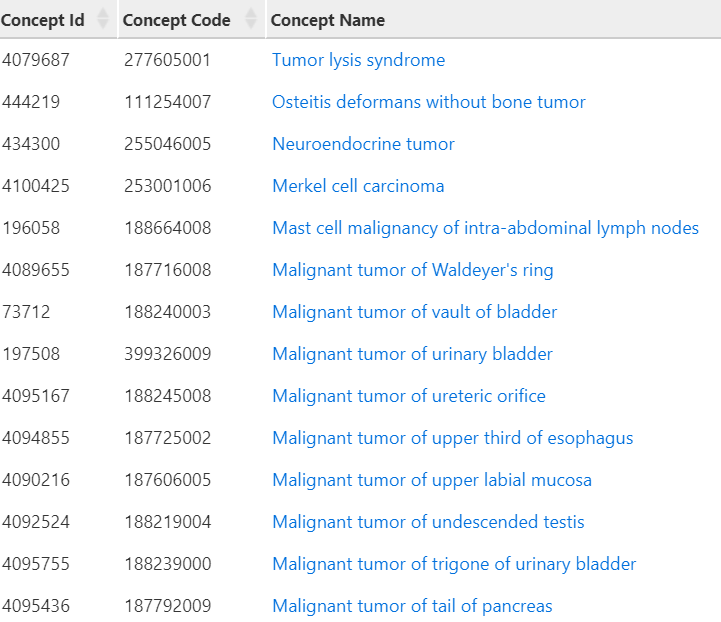


The expression JSON is attached as Appendix 2.

* [hxia40] cancer

<http://gt-health-analytics-1.us-east-1.elasticbeanstalk.com/#/conceptset/527/details>

As it has been reported that hydroxyurea could cause acquired DNA mutations (Hanft et al., 2000), to investigate on how much cancerous risk is associated with hydroxyurea, all cancer-related concepts on Atlas have been selected:



The expression JSON is attached as Appendix 3.

# Cohorts

* [hxia40] patients taking Anagrelide

<http://gt-health-analytics-1.us-east-1.elasticbeanstalk.com/#/cohortdefinition/446>

The test view is attached as Appendix 4.

* [hxia40] patients taking Hydroxyurea

<http://gt-health-analytics-1.us-east-1.elasticbeanstalk.com/#/cohortdefinition/449>

The test view is attached as Appendix 5.

* [hxia40] cancer patients exposed to either drug

<http://gt-health-analytics-1.us-east-1.elasticbeanstalk.com/#/cohortdefinition/452>

The test view is attached as Appendix 6.

# Discussion

The number of records in the four concepts sets are listed below:

|  |  |  |  |
| --- | --- | --- | --- |
| Concept set | anagrelide | hydroxyurea | cancer |
| Num of records | 47,344 | 33,243 | 2,500,292 |

The numbers of records in the 100k dataset for the three cohorts are listed below:

|  |  |  |  |
| --- | --- | --- | --- |
| Cohort | patients taking Anagrelide | patients taking Hydroxyurea | cancer patients exposed to either drug |
| Num of records | 638 | 699 | 172 |

Although it has been reported that patients are diagnosed with cancer after being exposed to hydroxyurea from 0 to 21 months [ref], it is premature to assume exposure to hydroxyurea could immediately cause cancer – after all, the mutation risk (if significant) of hydroxyurea exposure will take time to be effective. Thus, for the outcome cohort, I defined the observation window to be 3 months – 3 years before index start date, to exclude the patients that are diagnosed with cancer immediately after hydroxyurea exposure.

# References

2020 ICD-10-CM Diagnosis Code Z79.02. (2020). Retrieved from <https://www.icd10data.com/ICD10CM/Codes/Z00-Z99/Z77-Z99/Z79-/Z79.02>

DRUG: Hydroxyurea. Retrieved from <https://www.genome.jp/dbget-bin/www_bget?dr:D00341>

Hanft, V. N., Fruchtman, S. R., Pickens, C. V., Rosse, W. F., Howard, T. A., & Ware, R. E. (2000). Acquired DNA mutations associated with in vivo hydroxyurea exposure. *Blood, 95*(11), 3589-3593.

Nand, S., Stock, W., Godwin, J., & Fisher, S. G. (1996). Leukemogenic risk of hydroxyurea therapy in polycythemia vera, essential thrombocythemia, and myeloid metaplasia with myelofibrosis. *American journal of hematology, 52*(1), 42-46.

# Appendix 1

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"CONCEPT\_NAME": "Increased cancer antigen 125",

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"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

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"CONCEPT\_NAME": "Malignant tumor of Meckel's diverticulum",

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"STANDARD\_CONCEPT\_CAPTION": "Standard",

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"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

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"CONCEPT\_NAME": "Malignant tumor of abdominal part of esophagus",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"CONCEPT\_ID": 4090224,

"CONCEPT\_NAME": "Malignant tumor of anterior floor of mouth",

"STANDARD\_CONCEPT": "S",

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"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"CONCEPT\_ID": 435754,

"CONCEPT\_NAME": "Malignant tumor of ascending colon",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"isExcluded": false,

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"CONCEPT\_ID": 4095756,

"CONCEPT\_NAME": "Malignant tumor of bladder neck",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"concept": {

"CONCEPT\_ID": 4092072,

"CONCEPT\_NAME": "Malignant tumor of body of pancreas",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"isExcluded": false,

"includeDescendants": false,

"includeMapped": false

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"concept": {

"CONCEPT\_ID": 4095320,

"CONCEPT\_NAME": "Malignant tumor of body of stomach",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeDescendants": false,

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"CONCEPT\_ID": 443391,

"CONCEPT\_NAME": "Malignant tumor of cecum",

"STANDARD\_CONCEPT": "S",

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"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

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"includeDescendants": false,

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"concept": {

"CONCEPT\_ID": 4094854,

"CONCEPT\_NAME": "Malignant tumor of cervical part of esophagus",

"STANDARD\_CONCEPT": "S",

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"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeDescendants": false,

"includeMapped": false

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"CONCEPT\_ID": 198984,

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"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

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"VOCABULARY\_ID": "SNOMED",

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"CONCEPT\_ID": 4092211,

"CONCEPT\_NAME": "Malignant tumor of glottis",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"CONCEPT\_NAME": "Malignant tumor of lower labial mucosa",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeDescendants": false,

"includeMapped": false

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"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

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"INVALID\_REASON\_CAPTION": "Valid",

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"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeMapped": false

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"concept": {

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"CONCEPT\_NAME": "Malignant tumor of middle third of esophagus",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"isExcluded": false,

"includeDescendants": false,

"includeMapped": false

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"concept": {

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"CONCEPT\_NAME": "Malignant tumor of nasal cavity",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"isExcluded": false,

"includeDescendants": false,

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"concept": {

"CONCEPT\_ID": 25189,

"CONCEPT\_NAME": "Malignant tumor of oral cavity",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

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"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"concept": {

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"CONCEPT\_NAME": "Malignant tumor of pancreatic duct",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

"CONCEPT\_CODE": "187793004",

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"VOCABULARY\_ID": "SNOMED",

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"concept": {

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"CONCEPT\_NAME": "Malignant tumor of posterior wall of oropharynx",

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"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeMapped": false

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"concept": {

"CONCEPT\_ID": 4092212,

"CONCEPT\_NAME": "Malignant tumor of supraglottis",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"concept": {

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"CONCEPT\_NAME": "Malignant tumor of tail of pancreas",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeMapped": false

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"concept": {

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"CONCEPT\_NAME": "Malignant tumor of trigone of urinary bladder",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

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"includeMapped": false

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"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

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"isExcluded": false,

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"includeMapped": false

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"concept": {

"CONCEPT\_ID": 4090216,

"CONCEPT\_NAME": "Malignant tumor of upper labial mucosa",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

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"concept": {

"CONCEPT\_ID": 4094855,

"CONCEPT\_NAME": "Malignant tumor of upper third of esophagus",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

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"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeMapped": false

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"CONCEPT\_NAME": "Malignant tumor of ureteric orifice",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeDescendants": false,

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"concept": {

"CONCEPT\_ID": 197508,

"CONCEPT\_NAME": "Malignant tumor of urinary bladder",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"isExcluded": false,

"includeDescendants": false,

"includeMapped": false

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"concept": {

"CONCEPT\_ID": 73712,

"CONCEPT\_NAME": "Malignant tumor of vault of bladder",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeMapped": false

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"CONCEPT\_ID": 196058,

"CONCEPT\_NAME": "Mast cell malignancy of intra-abdominal lymph nodes",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"concept": {

"CONCEPT\_ID": 4100425,

"CONCEPT\_NAME": "Merkel cell carcinoma",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"CONCEPT\_ID": 434300,

"CONCEPT\_NAME": "Neuroendocrine tumor",

"STANDARD\_CONCEPT": "S",

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"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeDescendants": false,

"includeMapped": false

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"concept": {

"CONCEPT\_ID": 444219,

"CONCEPT\_NAME": "Osteitis deformans without bone tumor",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

"CONCEPT\_CODE": "111254007",

"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"isExcluded": false,

"includeDescendants": false,

"includeMapped": false

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"concept": {

"CONCEPT\_ID": 4079687,

"CONCEPT\_NAME": "Tumor lysis syndrome",

"STANDARD\_CONCEPT": "S",

"STANDARD\_CONCEPT\_CAPTION": "Standard",

"INVALID\_REASON": "V",

"INVALID\_REASON\_CAPTION": "Valid",

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"DOMAIN\_ID": "Condition",

"VOCABULARY\_ID": "SNOMED",

"CONCEPT\_CLASS\_ID": "Clinical Finding"

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"includeDescendants": false,

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# AppENDIX 4

[hxia40] patients taking Anagrelide

Initial Event Cohort

People having any of the following:

a drug exposure of [hxia40] anagrelide1

with continuous observation of at least 0 days prior and 0 days after event index date, and limit initial events to: earliest event per person.

Limit qualifying cohort to: earliest event per person.

End Date Strategy

No end date strategy selected. By default, the cohort end date will be the end of the observation period that contains the index event.

Cohort Collapse Strategy:

Collapse cohort by era with a gap size of 0 days.

Appendix 1: Concept Set Definitions

[hxia40] anagrelide

Concept Id Concept Name Domain Vocabulary Excluded Descendants Mapped

1380068 Interferon Alfa-2b Drug RxNorm NO NO NO

1381253 anagrelide Drug RxNorm NO NO NO

19122203 anagrelide 0.5 MG Oral Capsule Drug RxNorm NO NO NO

1381259 anagrelide 0.5 MG Oral Capsule [Agrylin] Drug RxNorm NO NO NO

1381257 anagrelide 1 MG Oral Capsule Drug RxNorm NO NO NO

1381258 anagrelide 1 MG Oral Capsule [Agrylin] Drug RxNorm NO NO NO

1797155 peginterferon alfa-2b Drug RxNorm NO NO NO

# Appendix 5

[hxia40] patients taking Hydroxyurea

Initial Event Cohort

People having any of the following:

a drug exposure of [hxia40] hydroxyurea1

with continuous observation of at least 0 days prior and 0 days after event index date, and limit initial events to: earliest event per person.

Limit qualifying cohort to: earliest event per person.

End Date Strategy

No end date strategy selected. By default, the cohort end date will be the end of the observation period that contains the index event.

Cohort Collapse Strategy:

Collapse cohort by era with a gap size of 0 days.

Appendix 1: Concept Set Definitions

[hxia40] hydroxyurea

Concept Id Concept Name Domain Vocabulary Excluded Descendants Mapped

1377141 hydroxyurea Drug RxNorm NO NO NO

1377170 hydroxyurea 1000 MG Oral Tablet Drug RxNorm NO NO NO

1377171 hydroxyurea 1000 MG Oral Tablet [Mylocel] Drug RxNorm NO NO NO

19023560 hydroxyurea 200 MG Oral Capsule Drug RxNorm NO NO NO

1377167 hydroxyurea 200 MG Oral Capsule [Droxia] Drug RxNorm NO NO NO

19023561 hydroxyurea 300 MG Oral Capsule Drug RxNorm NO NO NO

1377168 hydroxyurea 300 MG Oral Capsule [Droxia] Drug RxNorm NO NO NO

19023562 hydroxyurea 400 MG Oral Capsule Drug RxNorm NO NO NO

1377169 hydroxyurea 400 MG Oral Capsule [Droxia] Drug RxNorm NO NO NO

1377163 hydroxyurea 500 MG Oral Capsule Drug RxNorm NO NO NO

19007385 hydroxyurea 500 MG Oral Capsule [Hydrea] Drug RxNorm NO NO NO

# Appendix 6

[hxia40] cancer patients exposed to either drug

Initial Event Cohort

People having any of the following:

a condition occurrence of [hxia40] cancer2

with continuous observation of at least 0 days prior and 0 days after event index date, and limit initial events to: earliest event per person.

Inclusion Rules

Inclusion Criteria #1: exposed to either drug

Having any of the following criteria:

at least 1 occurrences of a drug exposure of [hxia40] anagrelide1

where event starts between 1095 days Before and 90 days Before index start date

or at least 1 occurrences of a drug exposure of [hxia40] hydroxyurea3

where event starts between 1095 days Before and 90 days Before index start date

Limit qualifying cohort to: earliest event per person.

End Date Strategy

No end date strategy selected. By default, the cohort end date will be the end of the observation period that contains the index event.

Cohort Collapse Strategy:

Collapse cohort by era with a gap size of 0 days.

Appendix 1: Concept Set Definitions

[hxia40] anagrelide

Concept Id Concept Name Domain Vocabulary Excluded Descendants Mapped

1380068 Interferon Alfa-2b Drug RxNorm NO NO NO

1381253 anagrelide Drug RxNorm NO NO NO

19122203 anagrelide 0.5 MG Oral Capsule Drug RxNorm NO NO NO

1381259 anagrelide 0.5 MG Oral Capsule [Agrylin] Drug RxNorm NO NO NO

1381257 anagrelide 1 MG Oral Capsule Drug RxNorm NO NO NO

1381258 anagrelide 1 MG Oral Capsule [Agrylin] Drug RxNorm NO NO NO

1797155 peginterferon alfa-2b Drug RxNorm NO NO NO

[hxia40] cancer

Concept Id Concept Name Domain Vocabulary Excluded Descendants Mapped

438990 Benign neuroendocrine tumor Condition SNOMED NO NO NO

193431 Benign tumor of digestive organ Condition SNOMED NO NO NO

193722 Benign tumor of endocrine pancreas Condition SNOMED NO NO NO

434605 Benign tumor of lacrimal drainage structure Condition SNOMED NO NO NO

198991 Benign tumor of peritoneum and retroperitoneum Condition SNOMED NO NO NO

433979 Benign tumor of respiratory and intrathoracic organ Condition SNOMED NO NO NO

201807 Burkitt's tumor of intra-abdominal lymph nodes Condition SNOMED NO NO NO

438376 Burkitt's tumor of intrathoracic lymph nodes Condition SNOMED NO NO NO

433426 Burkitt's tumor of lymph nodes of axilla AND/OR upper limb Condition SNOMED NO NO NO

437504 Burkitt's tumor of lymph nodes of head, face AND/OR neck Condition SNOMED NO NO NO

444440 Burkitt's tumor of spleen Condition SNOMED NO NO NO

192855 Cancer in situ of urinary bladder Condition SNOMED NO NO NO

437238 Carcinoid tumor of appendix Condition SNOMED NO NO NO

443565 Carcinoid tumor of gastrointestinal tract Condition SNOMED NO NO NO

432271 Carcinoid tumor of ileum Condition SNOMED NO NO NO

193155 Carcinoid tumor of large intestine Condition SNOMED NO NO NO

198100 Carcinoid tumor of small intestine Condition SNOMED NO NO NO

194306 Carcinoid tumor of stomach Condition SNOMED NO NO NO

433435 Carcinoma in situ Condition SNOMED NO NO NO

436671 Carcinoma in situ of anal canal Condition SNOMED NO NO NO

78110 Carcinoma in situ of anus Condition SNOMED NO NO NO

81250 Carcinoma in situ of breast Condition SNOMED NO NO NO

4093960 Carcinoma in situ of bronchus and lung Condition SNOMED NO NO NO

75512 Carcinoma in situ of colon Condition SNOMED NO NO NO

4116351 Carcinoma in situ of ear Condition SNOMED NO NO NO

373732 Carcinoma in situ of eye Condition SNOMED NO NO NO

192577 Carcinoma in situ of female genital organ Condition SNOMED NO NO NO

192291 Carcinoma in situ of intestinal tract Condition SNOMED NO NO NO

24897 Carcinoma in situ of larynx Condition SNOMED NO NO NO

441819 Carcinoma in situ of lip, oral cavity and pharynx Condition SNOMED NO NO NO

192292 Carcinoma in situ of liver and/or biliary system Condition SNOMED NO NO NO

196068 Carcinoma in situ of male genital organ Condition SNOMED NO NO NO

193162 Carcinoma in situ of penis Condition SNOMED NO NO NO

200970 Carcinoma in situ of prostate Condition SNOMED NO NO NO

75210 Carcinoma in situ of rectum Condition SNOMED NO NO NO

261528 Carcinoma in situ of respiratory tract Condition SNOMED NO NO NO

139766 Carcinoma in situ of scalp and skin of neck Condition SNOMED NO NO NO

138996 Carcinoma in situ of skin Condition SNOMED NO NO NO

434883 Carcinoma in situ of skin of eyelid including canthus Condition SNOMED NO NO NO

133726 Carcinoma in situ of skin of face Condition SNOMED NO NO NO

133725 Carcinoma in situ of skin of lip Condition SNOMED NO NO NO

134308 Carcinoma in situ of skin of lower limb Condition SNOMED NO NO NO

132862 Carcinoma in situ of skin of trunk, excluding scrotum Condition SNOMED NO NO NO

437240 Carcinoma in situ of skin of upper limb and shoulder Condition SNOMED NO NO NO

200974 Carcinoma in situ of stomach Condition SNOMED NO NO NO

81247 Carcinoma in situ of urinary system Condition SNOMED NO NO NO

194611 Carcinoma in situ of uterine cervix Condition SNOMED NO NO NO

192581 Carcinoma in situ of uterus Condition SNOMED NO NO NO

195513 Carcinoma in situ of vagina Condition SNOMED NO NO NO

438386 Carcinoma in situ of vulva Condition SNOMED NO NO NO

443571 Cervicovaginal cytology: High grade squamous intraepithelial lesion or carcinoma Condition SNOMED NO NO NO

4194462 Chorioretinal tumor Condition SNOMED NO NO NO

438701 Disseminated malignancy of unknown primary Condition SNOMED NO NO NO

4167696 Estrogen receptor positive tumor Condition SNOMED NO NO NO

441692 Finding of serum tumor marker level Condition SNOMED NO NO NO

438151 Glaucoma associated with tumors AND/OR cysts Condition SNOMED NO NO NO

4331508 Increased cancer antigen 125 Condition SNOMED NO NO NO

40482859 Malignant carcinoid tumor Condition SNOMED NO NO NO

4040379 Malignant mast cell tumor Condition SNOMED NO NO NO

4180794 Malignant retroperitoneal tumor Condition SNOMED NO NO NO

4095437 Malignant tumor of Islets of Langerhans Condition SNOMED NO NO NO

4094863 Malignant tumor of Meckel's diverticulum Condition SNOMED NO NO NO

4089655 Malignant tumor of Waldeyer's ring Condition SNOMED NO NO NO

4095316 Malignant tumor of abdominal part of esophagus Condition SNOMED NO NO NO

4090224 Malignant tumor of anterior floor of mouth Condition SNOMED NO NO NO

435754 Malignant tumor of ascending colon Condition SNOMED NO NO NO

4095756 Malignant tumor of bladder neck Condition SNOMED NO NO NO

4092072 Malignant tumor of body of pancreas Condition SNOMED NO NO NO

4095320 Malignant tumor of body of stomach Condition SNOMED NO NO NO

443391 Malignant tumor of cecum Condition SNOMED NO NO NO

4094854 Malignant tumor of cervical part of esophagus Condition SNOMED NO NO NO

198984 Malignant tumor of cervix Condition SNOMED NO NO NO

4092211 Malignant tumor of glottis Condition SNOMED NO NO NO

4150793 Malignant tumor of lower labial mucosa Condition SNOMED NO NO NO

4089656 Malignant tumor of lower third of esophagus Condition SNOMED NO NO NO

4092060 Malignant tumor of middle third of esophagus Condition SNOMED NO NO NO

4177107 Malignant tumor of nasal cavity Condition SNOMED NO NO NO

25189 Malignant tumor of oral cavity Condition SNOMED NO NO NO

4094866 Malignant tumor of pancreatic duct Condition SNOMED NO NO NO

4094721 Malignant tumor of posterior wall of oropharynx Condition SNOMED NO NO NO

4092212 Malignant tumor of supraglottis Condition SNOMED NO NO NO

4095436 Malignant tumor of tail of pancreas Condition SNOMED NO NO NO

4095755 Malignant tumor of trigone of urinary bladder Condition SNOMED NO NO NO

4092524 Malignant tumor of undescended testis Condition SNOMED NO NO NO

4090216 Malignant tumor of upper labial mucosa Condition SNOMED NO NO NO

4094855 Malignant tumor of upper third of esophagus Condition SNOMED NO NO NO

4095167 Malignant tumor of ureteric orifice Condition SNOMED NO NO NO

197508 Malignant tumor of urinary bladder Condition SNOMED NO NO NO

73712 Malignant tumor of vault of bladder Condition SNOMED NO NO NO

196058 Mast cell malignancy of intra-abdominal lymph nodes Condition SNOMED NO NO NO

4100425 Merkel cell carcinoma Condition SNOMED NO NO NO

434300 Neuroendocrine tumor Condition SNOMED NO NO NO

444219 Osteitis deformans without bone tumor Condition SNOMED NO NO NO

4079687 Tumor lysis syndrome Condition SNOMED NO NO NO

[hxia40] hydroxyurea

Concept Id Concept Name Domain Vocabulary Excluded Descendants Mapped

1377141 hydroxyurea Drug RxNorm NO NO NO

1377170 hydroxyurea 1000 MG Oral Tablet Drug RxNorm NO NO NO

1377171 hydroxyurea 1000 MG Oral Tablet [Mylocel] Drug RxNorm NO NO NO

19023560 hydroxyurea 200 MG Oral Capsule Drug RxNorm NO NO NO

1377167 hydroxyurea 200 MG Oral Capsule [Droxia] Drug RxNorm NO NO NO

19023561 hydroxyurea 300 MG Oral Capsule Drug RxNorm NO NO NO

1377168 hydroxyurea 300 MG Oral Capsule [Droxia] Drug RxNorm NO NO NO

19023562 hydroxyurea 400 MG Oral Capsule Drug RxNorm NO NO NO

1377169 hydroxyurea 400 MG Oral Capsule [Droxia] Drug RxNorm NO NO NO

1377163 hydroxyurea 500 MG Oral Capsule Drug RxNorm NO NO NO

19007385 hydroxyurea 500 MG Oral Capsule [Hydrea] Drug RxNorm NO NO NO