

# Use Cases

## Clinical guidelines

### OVERVIEW

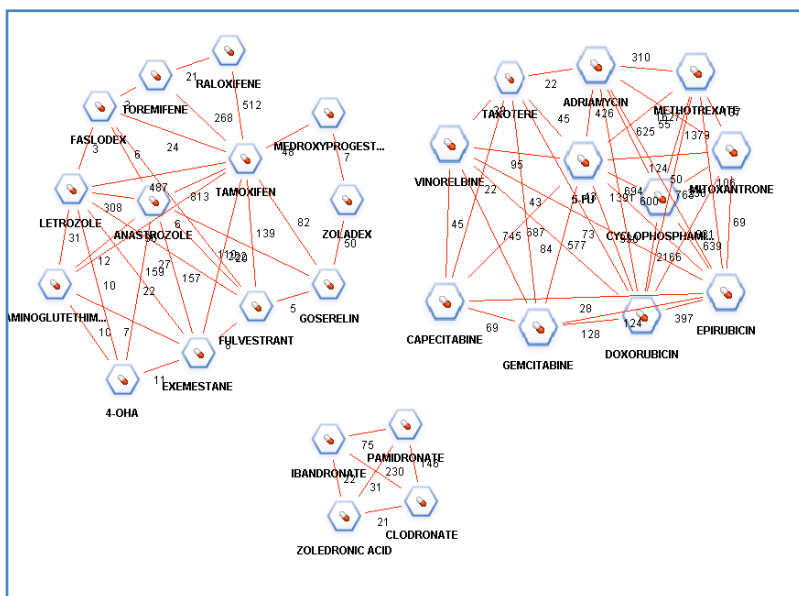
Evidence-based guidelines are based on systematic reviews of the literature. They require rigorous methods to search for and appraise the entire body of research related to one topic.

AKS<sup>2</sup> assists the experts to evaluate all the relevant scientific literature in a structured manner, so it may be possible to determine which therapies are beneficial and for whom.

### CASE STUDY

Several guidelines in the latest years have tried to address the problem of what is the most suitable strategy to manage breast cancer according to age group. To review the existing literature is quite a Project: more than 30000 articles about this disease have been published in the last 15 years.

With AKS, it is possible to start with certain advantage: a simple search for breast cancer in retrieves straightaway the top thirty drugs in use. Using AKS graphical interface, two distinct, large groups are detected. The essential difference between the two groups is noticed when checking the common biomedical terms for each group: Group 1 (13 drugs, including Tamoxifen – Top1) comprises hormone therapies (common terms: “antiestrogen”, “endocrin therapies”) and Group 2



### Step by Step

1. Go to Search bioentities for diseases. Enter the name of your disease of interest and click Search.

2. Go to Profile to view drugs full listing. Check the top 40 drugs. Click on the graph icon.

3. Select all the nodes in the graphics area, right-click on one of them and choose from the pull-down menu the option “*Relate with Graph*”. Set Relevance Value 50%, and the option “*Relate with selected nodes*”. If you cannot notice distinct groups, use filter relevance bar.

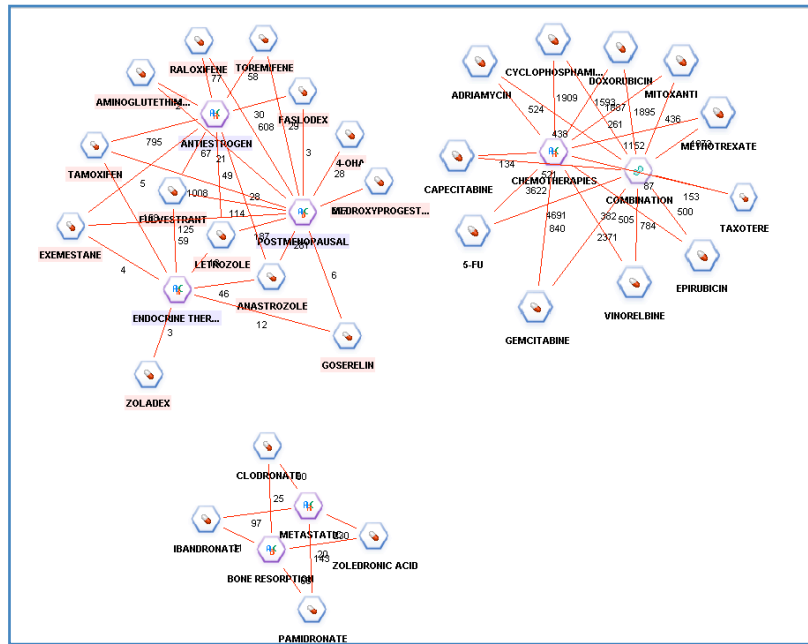
4. Select one node in any of the sub-graphs, right-click, and choose “*Select subgraph*”. Then, pick “*Add new bioentities*”. Now, from the Group Profile view, look at biomedical terms listing.

5. Select your favourite biomedical terms from the listing and then “*Show in Graph -selected elements in Graph, 1*”.

6. If interested in investigating any bioentity on its own (i.e. Zoladex), select the node, right-click and pick “*Open Bioentity Detail*”. Proceed as in step 5 to add any related bioentity from the profile listing.

gathers “chemotherapies” (common terms: “chemotherapy”, “induced chemotherapy”).

Focusing on Group 1, they all have in common the term “anti-estrogen” and they are recommended for “postmenopausal” patients (figure 2 – the keywords have been added to the graph). The only exception is Zoladex, despite also being an “endocrine-therapy”, is actually recommended for “premenopausal” patients, as a separate analysis reveals. On the other hand, no biomedical terms referring to age are common to the whole group 2.



## CONCLUSION

AKS<sup>2</sup> summarizes and exposes info scattered in a very large set of documents automatically. Assisted by graphical analysis, the expert can detect trends in a more efficient, unbiased way, and extract all the accumulated knowledge from many different articles to recommend what’s best to do without missing anything.

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