Project proposal: IMI FaCE facts

Facilitation of **C**oding of (real-world) **E**vidence – the **facts**

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Background to proposal - FaCE facts

Proposal aligns with requirement of the MedDRA Management Board

- MedDRA MB proposed development of a mapping capability for designated terminologies to MedDRA
- Initial focus on SNOMED CT and ICD (others will follow)
- MedDRA MB indicated that IMI would be an excellent forum since:
  - EFPIA companies have expertise in the terminologies
  - Facilitates adoption and early buy-in from MedDRA stakeholders
- Plan to follow a data driven approach (i.e. prioritise mapping of terms frequently used for safety or compelling public health reason e.g. outcomes of pregnancy) [***Data on file***: ~2,000 terms cover 95% of ADRs in ICSRs]

High-level aims of FaCE facts

Operational efficiencies targeted in support of data evaluation

- Organisation of MedDRA mapping to other terminologies:
  - SNOMED – widely used in healthcare systems
  - ICD 10 – gold standard terminology with multiple applicabilities
  - Are other terminologies worthy of consideration?
- This mapping would enable data from:
  - Electronic health records
  - e-prescribing systems
  - Other healthcare data sets (drug & disease registries, multi-purpose pharmacoepidemiological databases, insurance databases, etc.)

to feed data directly into regulatory & MAH pharmacovigilance systems without resource-intensive reclassification or manual coding

Use case 1: Electronic health records

Renal transplantation – evaluation of generic drug substitution

- Recipients of solid organ transplants receive maintenance immunosuppressant therapy to prevent graft rejection
- Patents of the gold standard treatments have expired, and generics have been introduced at substantially lower cost
- Clinical uncertainties exist concerning generic substitution
- Transplant societies, physicians, pharmacists & therapeutic committees worldwide discuss safety & efficacy of these drugs (all with narrow therapeutic indexes) in transplant recipients
- Clinical data on safety & efficacy of generic immunosuppression in solid organ transplantation are lacking
- To aid in clinical decision, a retrospective epidemiologic study to analyze use of these medicines in different transplant populations in the US & Europe was planned using four unique data sources
- Analysis of data across various healthcare systems will shed light on benefits & any potential risks of generic drug substitution

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Use case 2: Pregnancy exposures & outcomes

Safety of medicines in pregnancy represents a gap in Risk Management

- Project ongoing to investigate individual case pregnancy exposure reports (ICPERs) of cleft lip or palate associated with the use of medicinal products in pregnancy (post-marketing safety databases & social media); most coding systems rely on ICD 9 or 10
- Cleft lip and palate (CL/P) are congenital malformations that occur in embryonic & early fetal development
  - CL/P represent the most common congenital deformities of the head and neck
  - Cleft lip or palate affects one in about every 700 newborns worldwide
- Infants with CL/P require short-term and long-term care, medical and often surgical follow-up from practitioners in various specialties
- Multiple surgical interventions from infancy to adulthood may be needed to obtain an optimal outcome relative to speech, occlusion, facial appearance, and personal self-esteem.
- This represent an important burden on the healthcare system, social support organizations, all of which incurs significant costs

Use case 3: Digital development & clinical trials

Driving clinical trial innovation and assessing real-world evidence

Digital Development is driving innovation in clinical trials to accelerate the delivery of breakthrough medicines to patients

Increasingly complex and challenging environment, using country healthcare system-specific coding systems

Aim of revolutionising the conduct of clinical trials is to:

1) **Increase participation and adherence**
2) **Reduce trial cost and time, and to minimize errors**
3) **Reduce patient and investigator burden**

...whilst maintaining rigorous adherence to GCP standards

Use case 3: Innovation in clinical trials

New methods for setting-up, conduct and reporting of clinical trials

1

Pilot studies in COPD → **eSource trials** → **Scaled adoption**

2014 — 2015 — 2016+

eICF & eSource
(for study sites)

Country readiness:
legal, data privacy, regulatory (coding in Snomed & other terminologies)

2

Mobile Data
(for patients)

Historic BYOD* trials → **COPD Telehealth trials** → **Scaled adoption**

NVS

* BYOD = bring your own device (observational pilot)

2015 — 2016 — 2017+

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Use case 4: Real-world evidence risk minimisation

Social media offers possibilities for signal detection & risk management

01. Acquire

Collect social media data from APIs, third-party authorized resellers, and automated scraping

02. Filter

Automated processes to show relevant posts & clean data

03. Curate

remove false positives, disentangle attributions, code , correct geography

04. Statistics… and Determining Causation

Automated statistics & visual display aid hypothesis generation. determining causality requires data from other sources.

WEB-RADR

Use case 4: Automated processes

For making sense of social media data

Automated NLP

Bayesian classifier

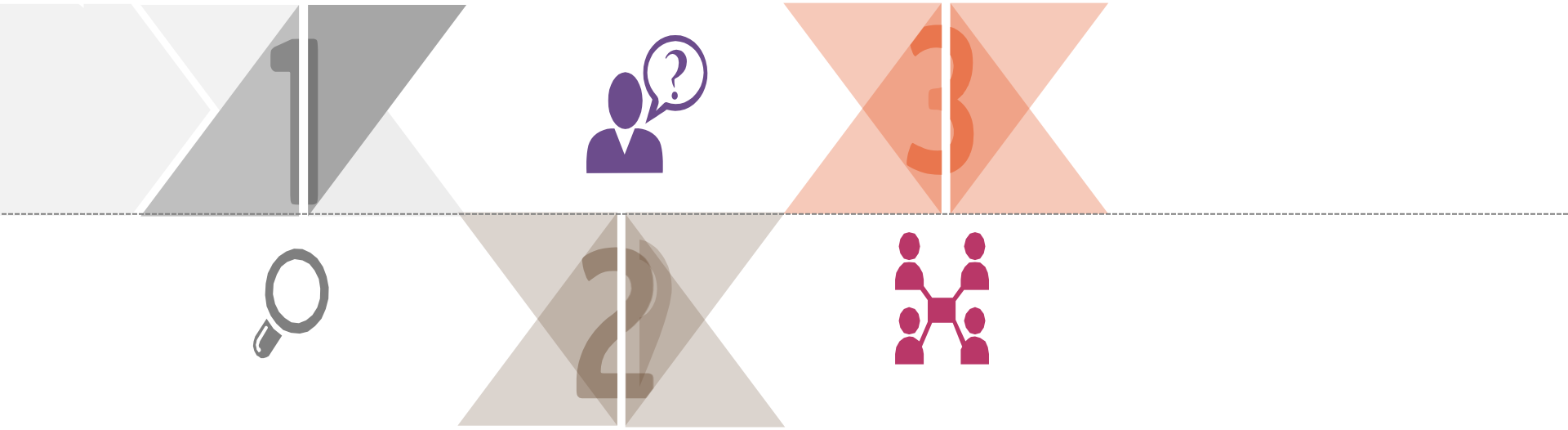
Machine learning

Identify Events

Reduce duplicates

Remove identifiers

Consolidate



Translate Vernacular

Internet vernacular to

Snomed/ICD 10 terms

WEB-RADR

Use case 4: Real-world evidence risk minimisation

Social media for signal detection & risk management

Social media

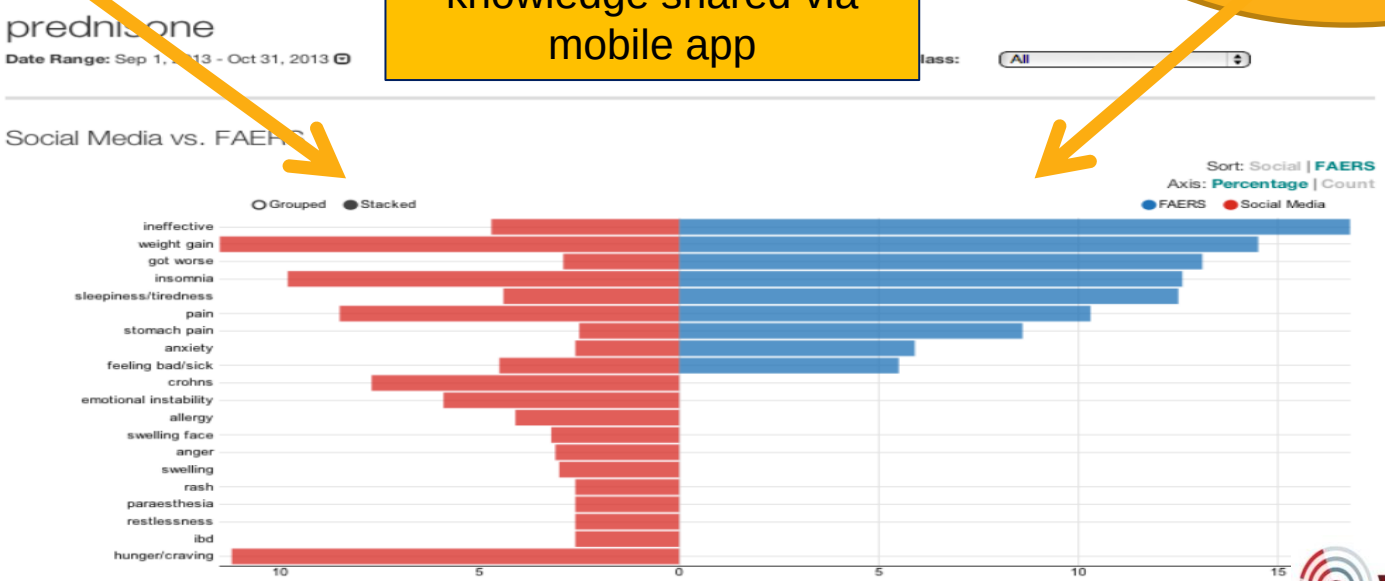
Mobile App to collect ADR reports

Notification of emerging insights, safety knowledge shared via mobile app

FDA U.S. Department of Health and Human Services Food and Drug Administration

MHRA Regulating Medicines and Medical Devices

EUROPEAN MEDICINES AGENCY SCIENCE MEDICINES HEALTH



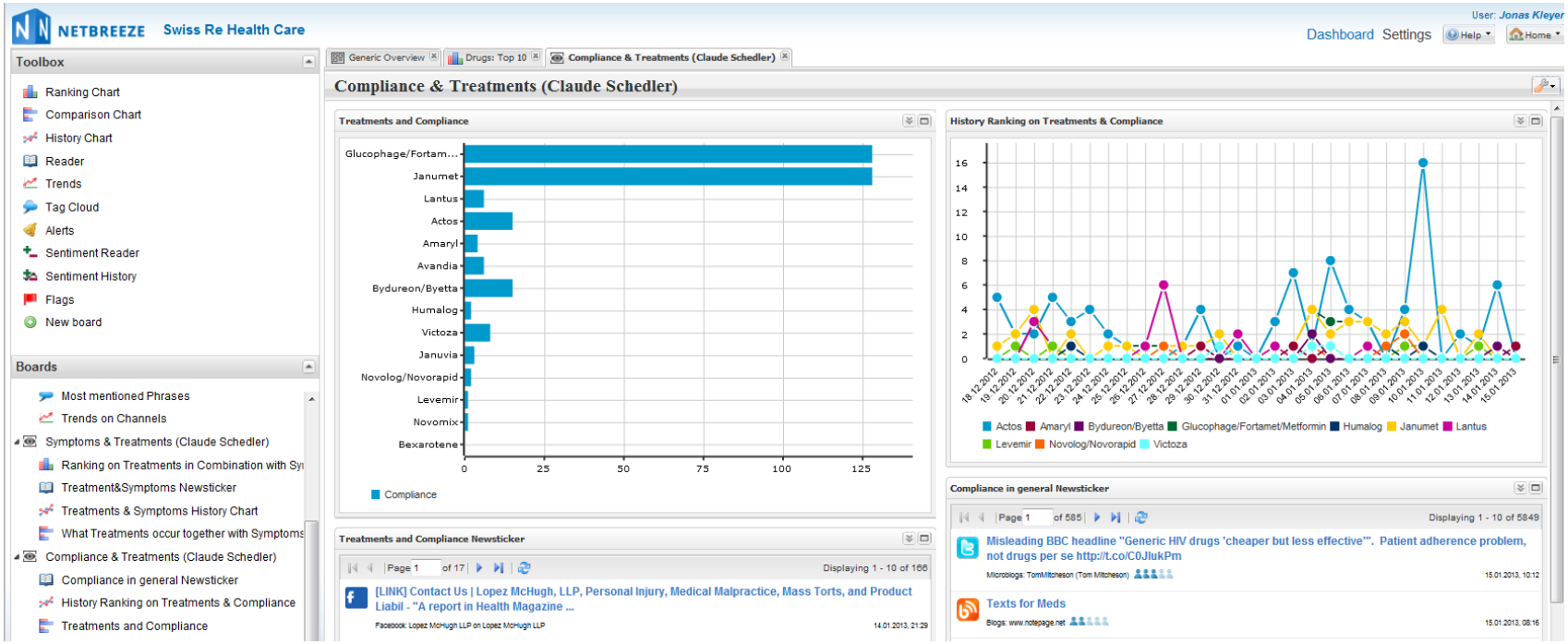
WEB-RADR

Sources : EU IMI Web-RADR Project, Images available on internet

Use cases 4 & 5: Real-world evidence - insurers

Health insurance companies are reviewing healthcare data

- Monitor up to six channels of social media
- Forum posts, blogs, microblogs (Twitter), Facebook, etc.



- Disease maps and risk maps

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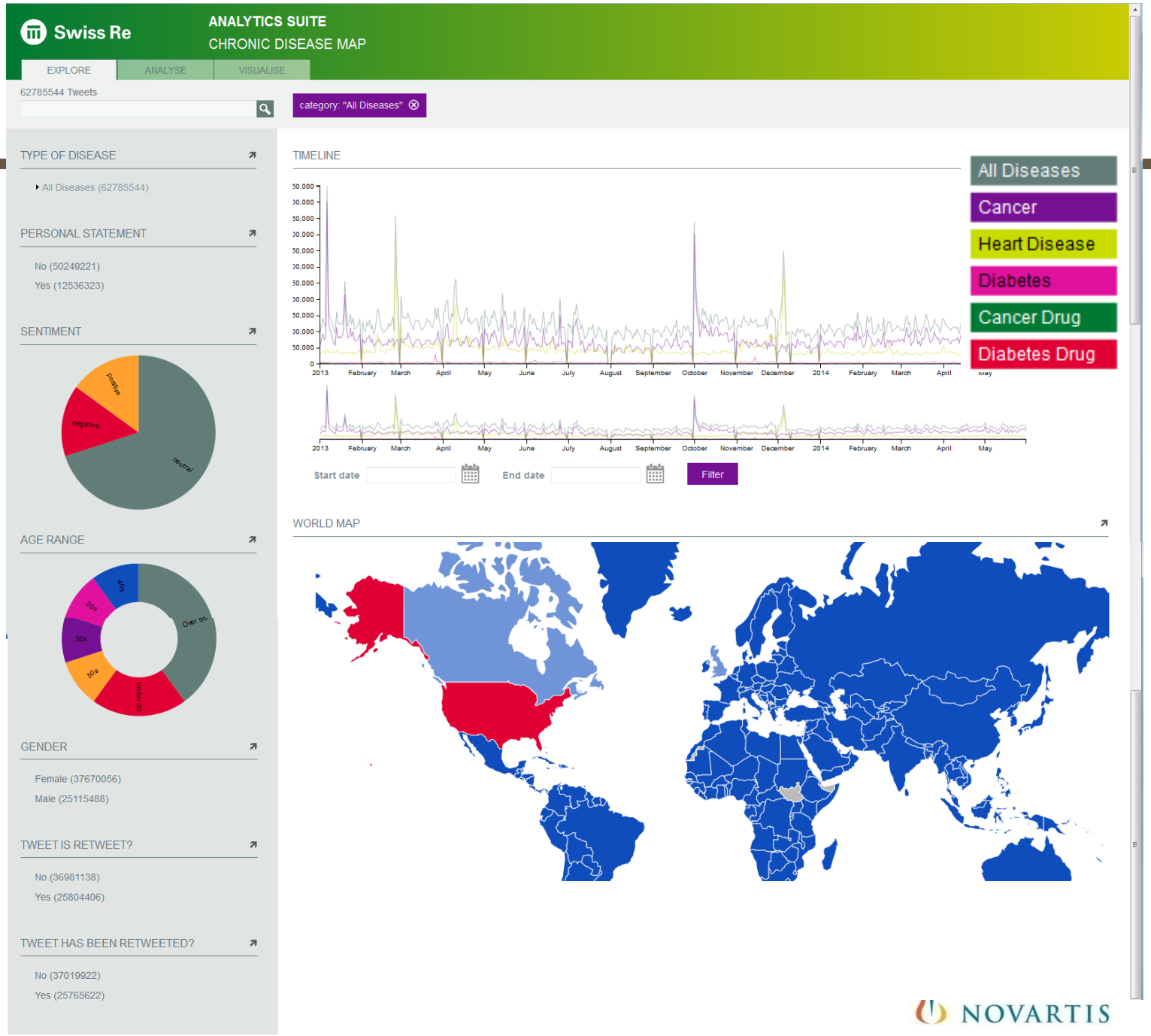
Social Media Chronic Diseases Map



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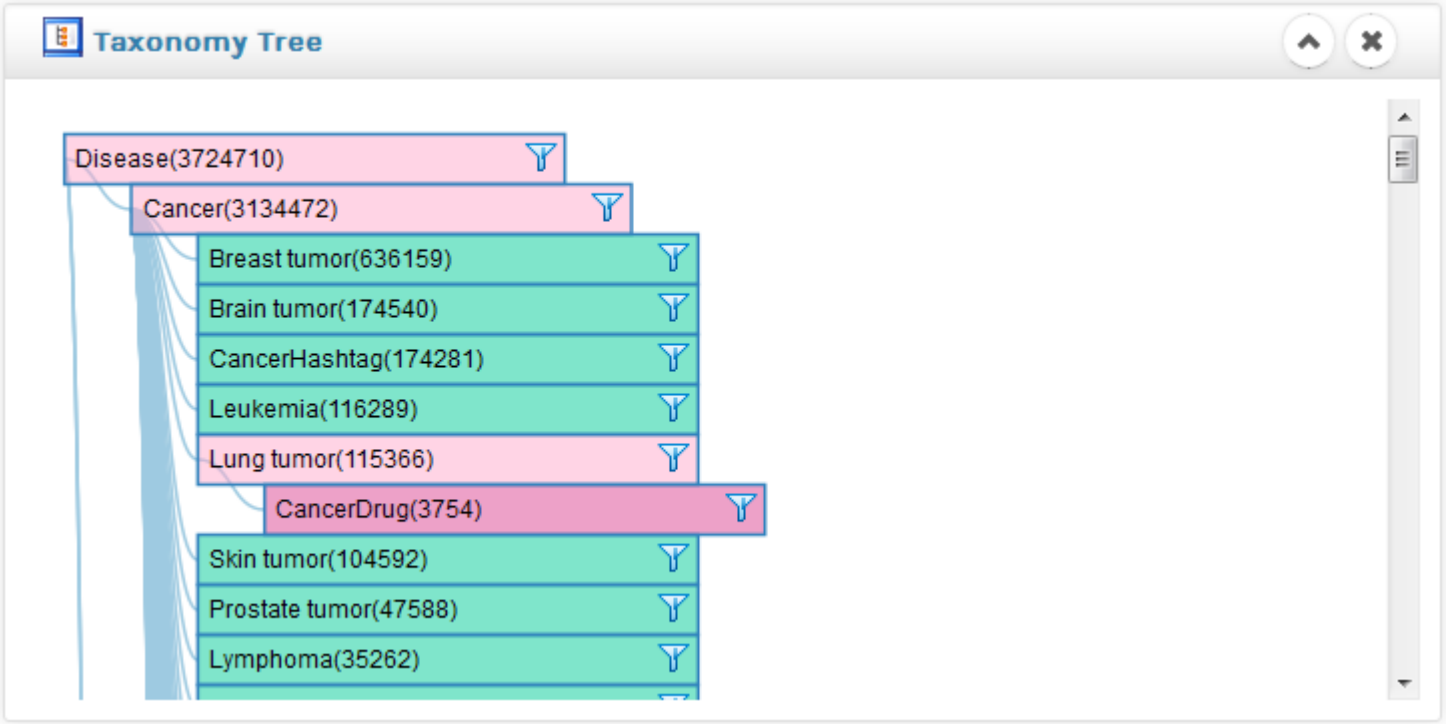
Social Media Chronic Diseases Map

- Taxonomy tree
  - filter content by category/subcategory/subsubcategory
  - each tree node contains a set of keywords



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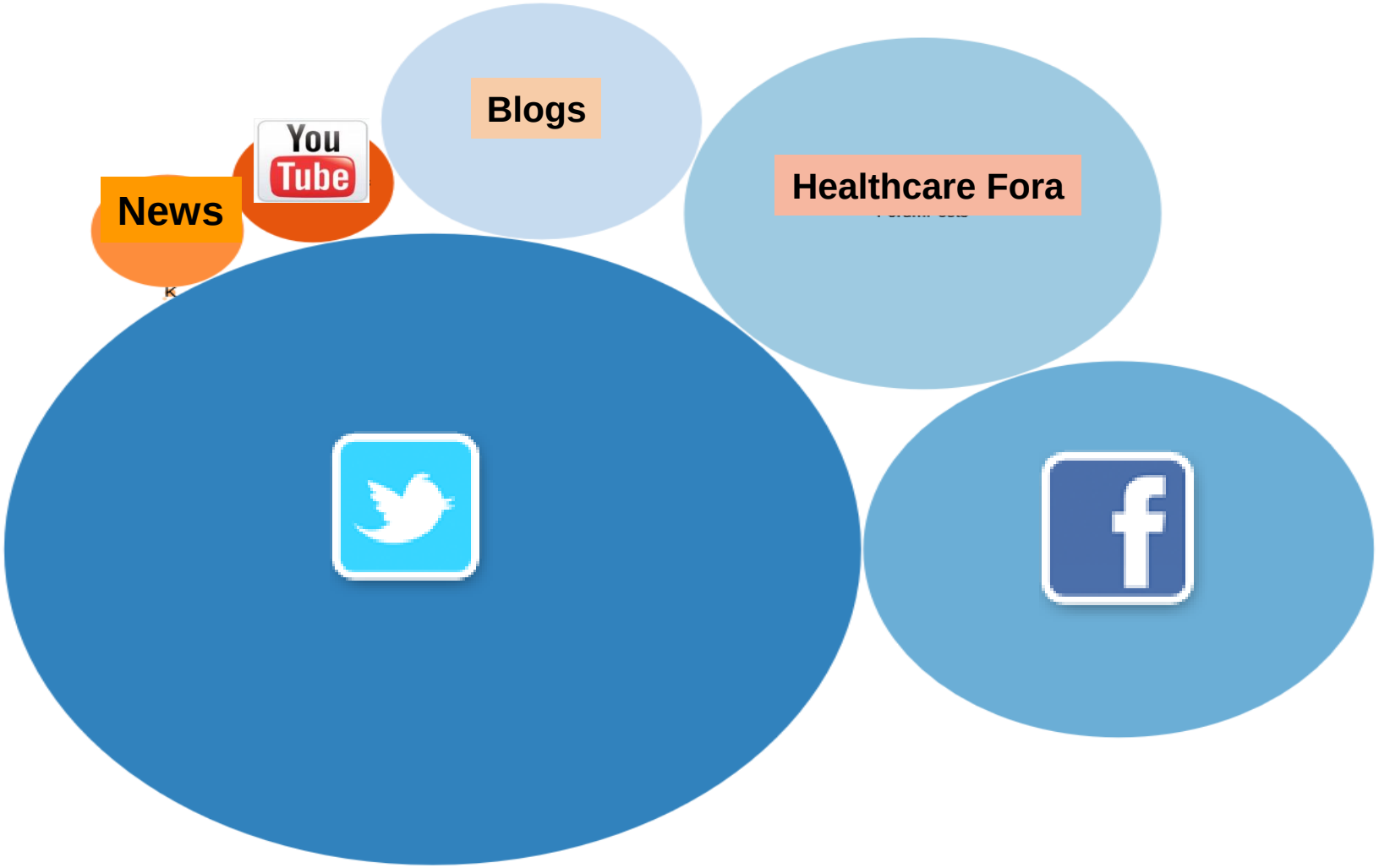
Diabetes data on social media – by source



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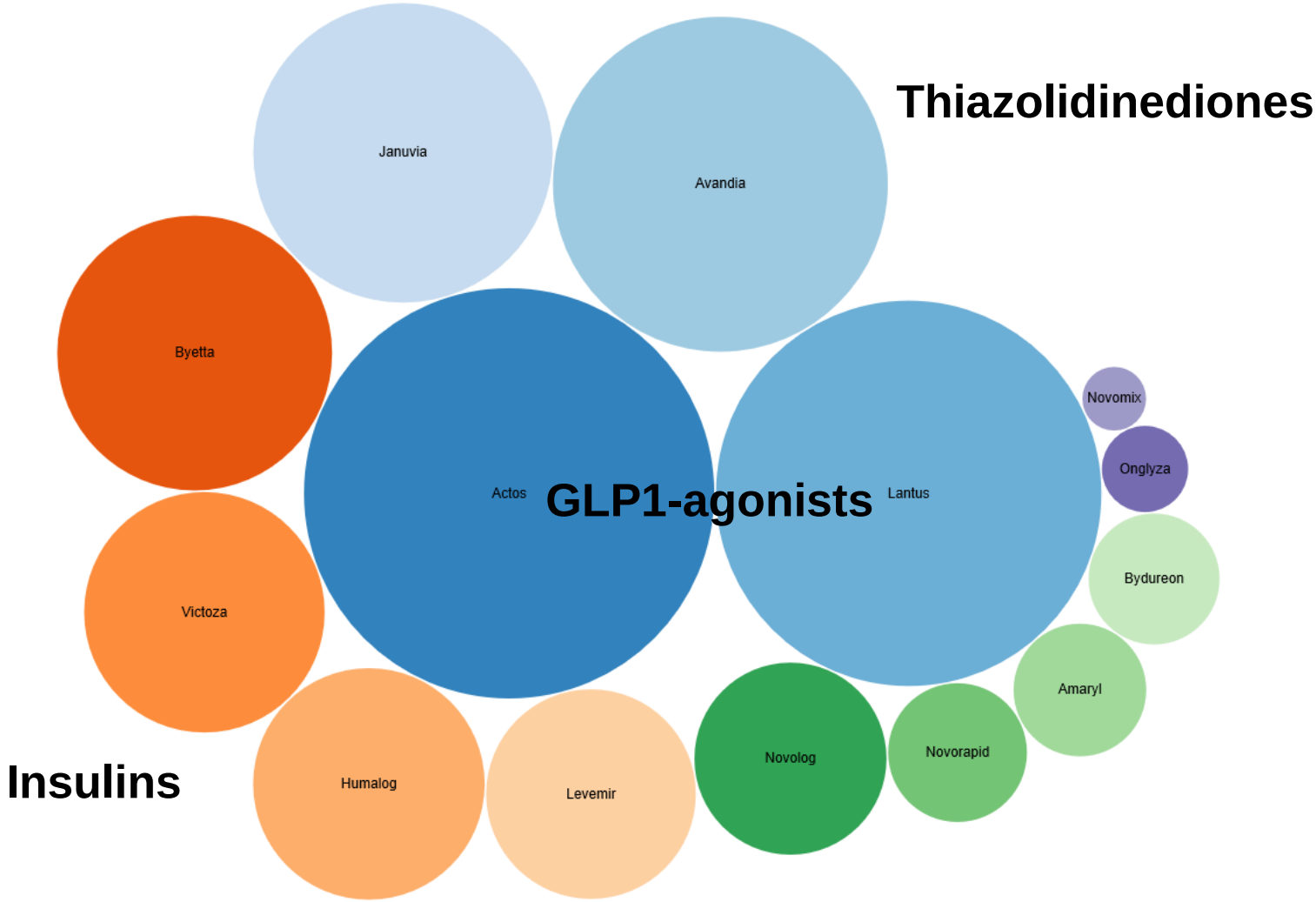
Diabetes data on social media – by drug



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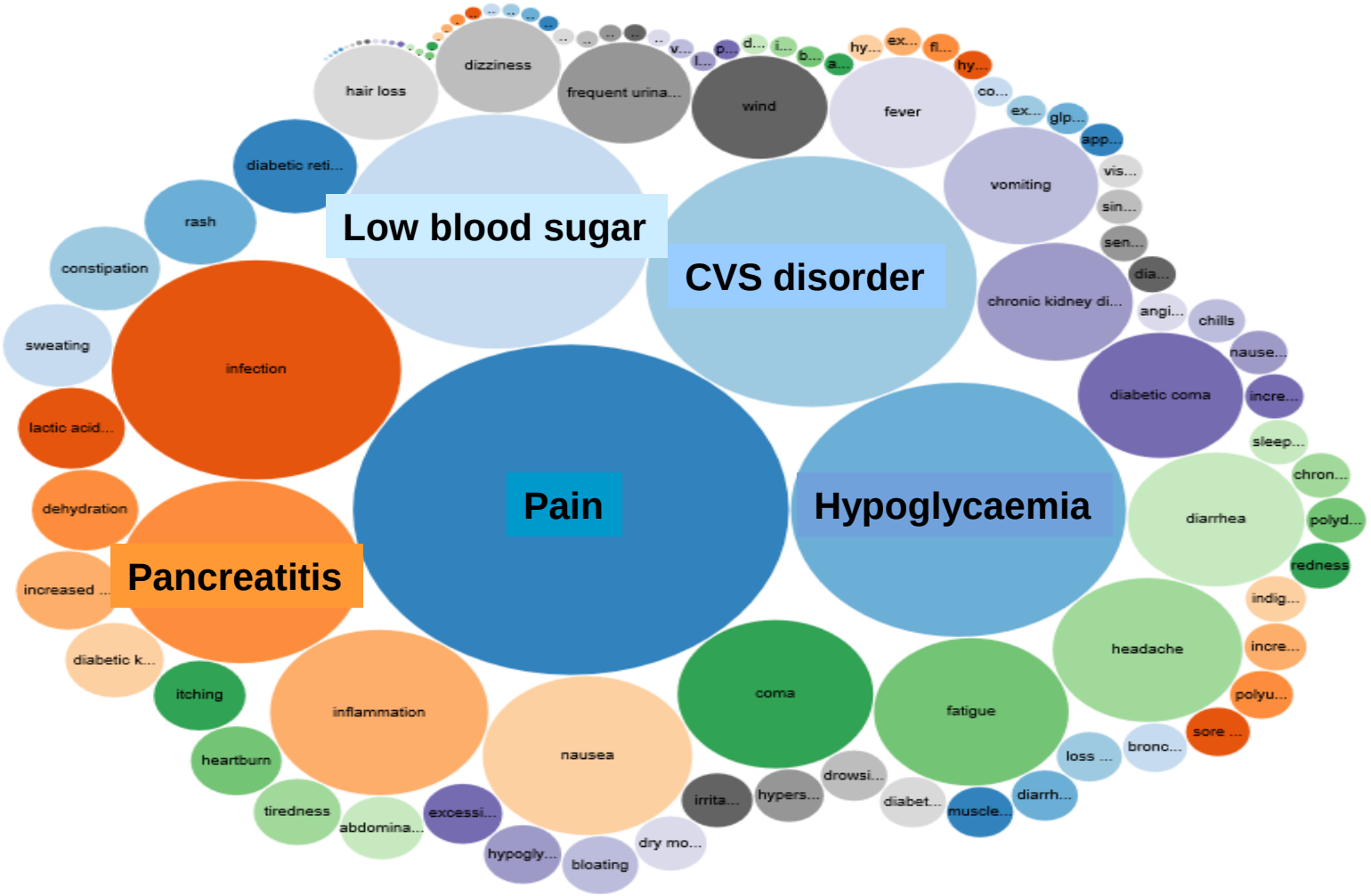
Diabetes data on social media – by AE



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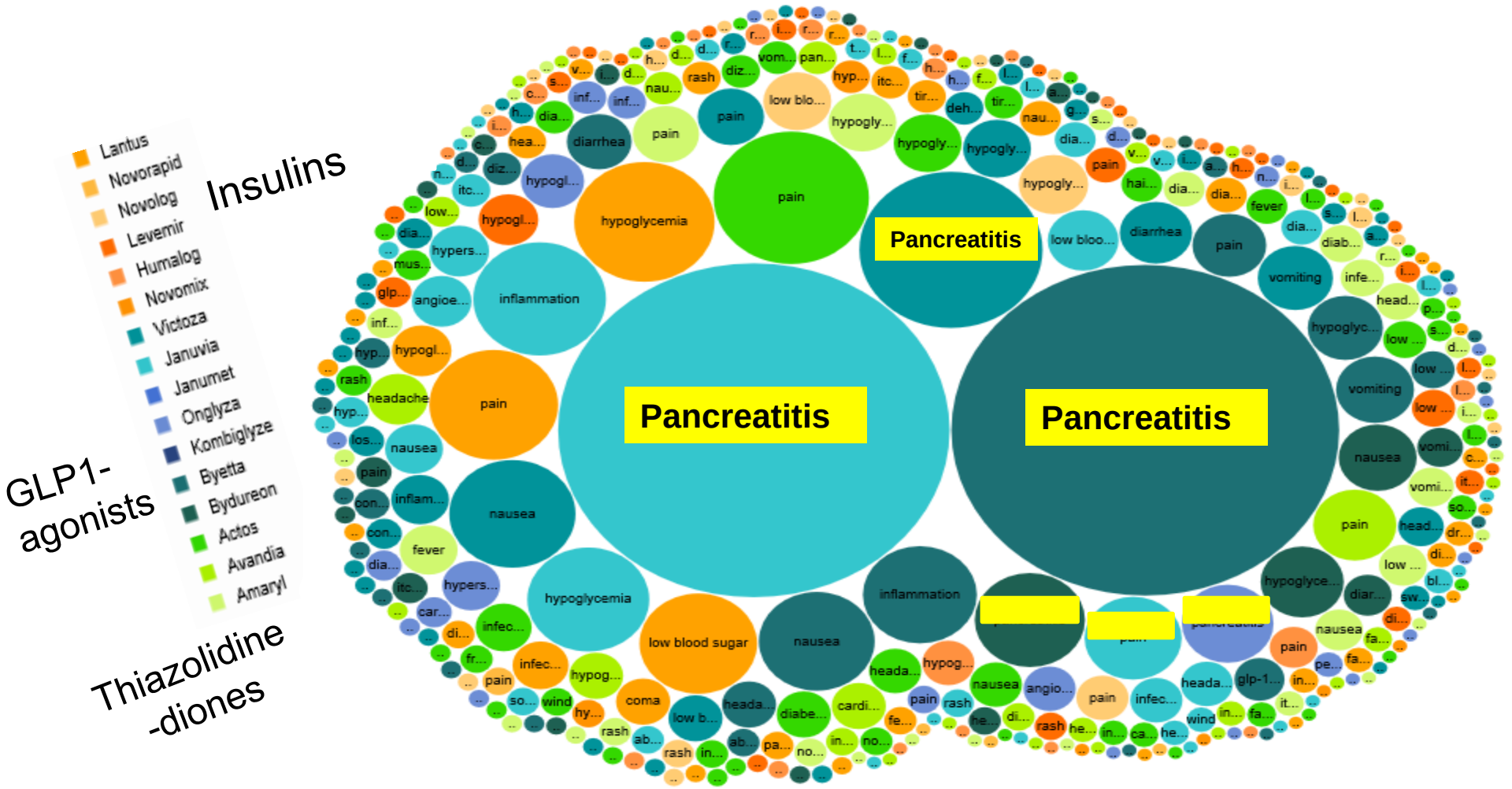
Diabetes data on social media – by DEC



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Advantages of IMI support

Structure of IMI confers a series of potential benefits

- IMI insists on a formal, time-based work plan:
  - Project must target terminologies in common use
  - Focus on broad applicability to MedDRA stakeholders
  - Produce validated mappings
  - Deliver to existing MedDRA licensees (no extra charge)
- ICH remains the owner of MedDRA
- MSSO will maintain mappings
- Potential benefits manifest for all stakeholders

Summary and discussion points

Points for consideration and to stimulate Q&A

- Novartis supportive of this initiative within the IMI forum
- Expressions of interest MedDRA MB + Lilly, GSK & NVS
- IMI is @ IMI 2 Call 9 stage, questions are:
  - Do you understand the concepts & potential utility of the proposal?
  - Does the outline generate any interest within your organisation?
  - Would PVEG members support or endorse the proposal?
  - What level of commitment would your company provide? (FTEs)
- Submit to the IMI PMO
- Request support from IMI and invite expressions of interest.

Conclusion and next steps

Potential to move this forward depends on support from EFPIA

- If no interest then this closes the discussion
- MedDRA MB will be informed via MAH representatives
- If sufficient interest **AND** commitment from MAHs
  - Submit a synopsis to the IMI Project Management Office
  - Request funding from IMI
  - Invite expressions of interest from consortia
  - ...Run the project