



JOSE C. GONZALEZ



How to extract
Health Market Intelligence from
the **Voice of the Patient**



To take home

Two Important Facts

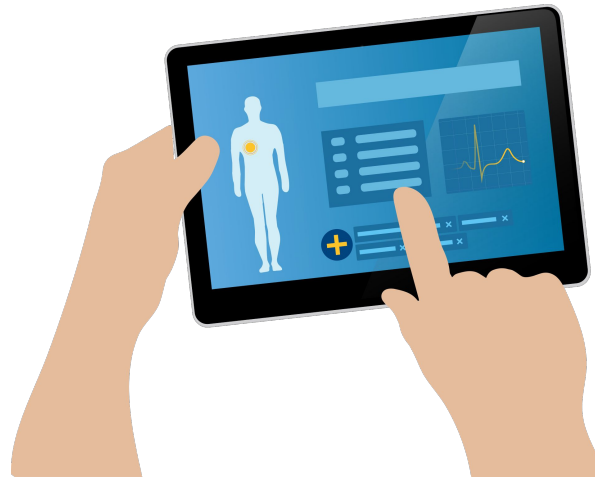
- 💬 1. Web forums: untapped source of the Voice of the Patient
- ★ 2. Most valuable market insights when added to other structured data

SHORT ABOUT US

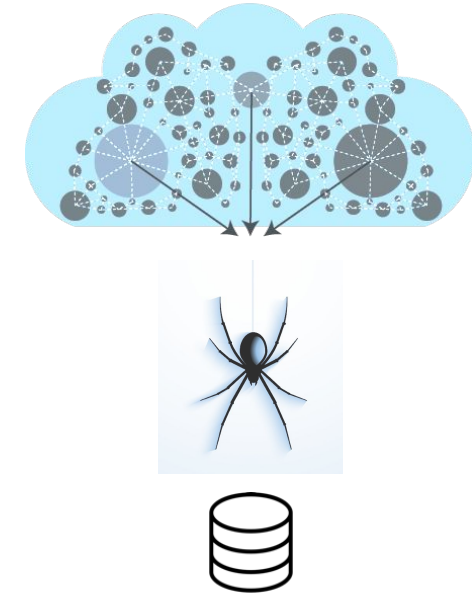
Focus on text-analytics for Pharmaceuticals



Voice of the Patient



Electronic Health Records



Other text sources

Scientific literature – FDA –
Patents – Business opportunities



Sources

Regular and special sources for the Voice of the Patient

FDA and the Voice of the Patient

These **meetings** provided FDA the opportunity to hear directly from **patients, caregivers, and advocates** about their perspectives on a number of diseases and its treatments.



01 Breast Cancer

02 Parkinson's disease

03 Psoriasis

04 Bleeding disorders

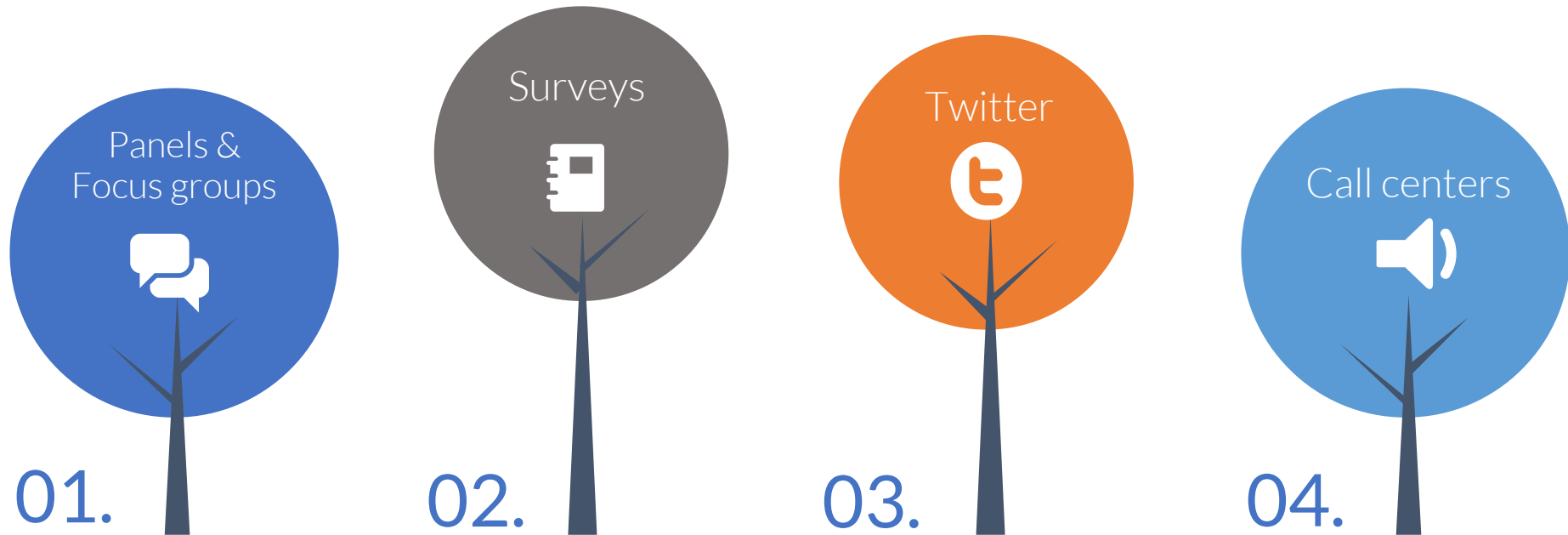
05 Lung Cancer

06 Fibromyalgia



REGULARLY

Sources of the Voice of the Patient



Some massive web forums

FertileThoughts®

●●● Supporting Your Family Building Dreams

- <http://www.fertilethoughts.com/forums/infertility/>
- 5 Million posts
- US

 **diabetes**
daily

- <https://www.diabetesdaily.com/>
- 1 Million posts
- US

HealthBoards
HEALTH MESSAGE BOARDS

- www.healthboards.com
- 5 Million posts
- US
- allergies, cancer, diabetes, heart disease, ...

patientslikeme™

- <https://patientslikeme.com/>
- 500,000 users
- 2,700 conditions
- To put patients first

 **Diabetes.co.uk**
the global diabetes community

- <http://www.diabetes.co.uk/forum>
- 1.5 M posts
- UK only

 **BREASTCANCER.ORG**
DISCUSSION BOARDS

- <https://community.breastcancer.org/>
- 2.5 M posts
- US

VOICE OF THE PATIENT

Comparison of Sources



Panels

Surveys

Call centers

Web forums

Sample Size



Cost per person



Insights



Bias



Cost of analytics



Fast results





One real case

In the area of fertility

Let's take one real case we worked on

FertileThoughts®

●●● Supporting Your Family Building Dreams

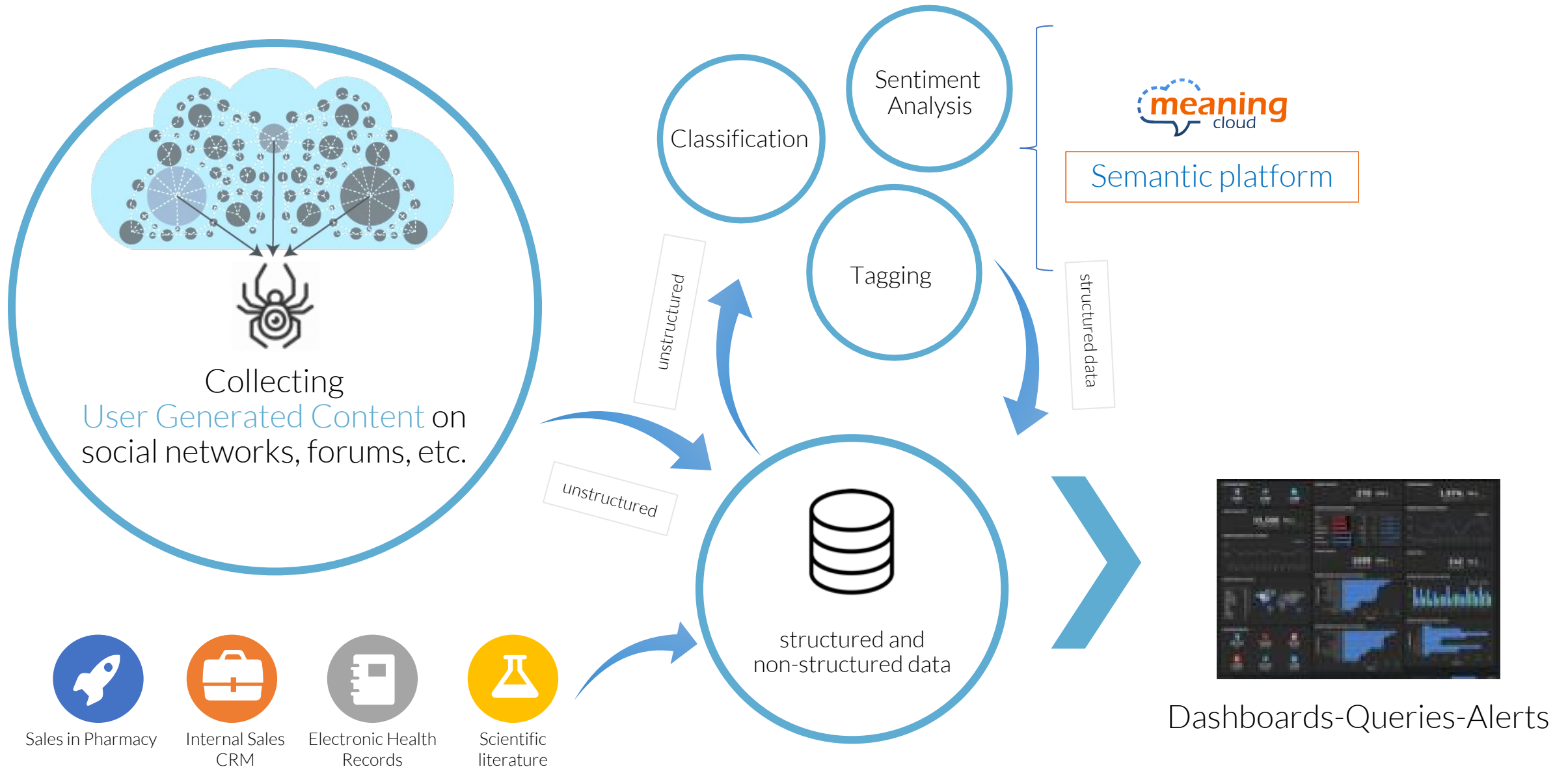
- <http://www.fertilethoughts.com/forums/infertility/>
- 5 Million posts
- US

lainfertilidad

- <https://www.lainfertilidad.es/>
- 800 K posts
- Spain only



Architecture



What millions of patients are talking about

Adverse Effects of Drugs



MenagerieNik

Heparin shot hurts

"I got my first heparin shot this morning and my leg hurt for an hour afterwards. Is heparin usually painful? I'm used to stinging from the Lupron/Cetrotide, but this hurts more and for longer."



dnjblohm
IL

Bleeding with PIO shots :(

"I'm looking for tips on how to give PIO shots so I don't bleed so much. For some reason when the nurse has given me my PIO lately, I am bleeding at least every other time. It's really starting to bug me and I'm wondering what you all do to prevent the bleeding. The nurse pulls back the syringe and makes sure he's not in a blood vessel, but after the shot I still bleed. grr..."

What millions of patients are talking about

Clinic - Doctor



MichelleXOXO
Pennsylvania

"We are going to meet with Dr. xxxxxxxx at the xxxx Clinic in a few weeks so any suggestions and guidance about what I should be asking would be great. If any of you have experience with the **Cleveland Clinic** and would be willing to share that would be awesome.



Christine Thron
Minnesota

"Anyone have any experience with IVF at Mayo in Rochester, MN? We have done our 6 IUIs there and really like them so far!"

What millions of patients are talking about

Patient's Experience



Clementine1117
California

"Just wondered if anyone else had an **upleasant experience** with Dr. Pxxxx?
Feel free to private message me or post on the site.

I would greatly appreciate your honest comments regarding your experience with him and his staff. Especially the Laguna Hills Office.

Much thanks!!!"



Christine Thron
Fort Bliss, TX

"I am so **angry** right now... My husband just called to say that the appointment today was just a "**referral step.**"seething..... Those **liars** assured us that today was THE day.

More to follow when something actually happens, of course."

What millions of patients are talking about

Brands and Products



A protocol for a priming cycle, where my partner does Fostipur injections (I think Bravelle equivalent) in the cycle before the ER cycle.

I did 3 rounds of Clomid (I can't remember if it was 50, 75 and 100, or 75, 100 & 150), before moving on to injectables. As far as ovulation, I responded very poorly to Clomid. In addition, that stuff gave me WICKED mood swings - it was one minute and, ouch! and Grrrrrr! the next. I had hot flashes all the time, and everyone in my life was afraid to say anything to me, for fear of how I'd react! (At one point, when I was on the highest dosage, I told my husband to get the F@*\$ OUT of MY house, and to never come back! OUCH!!!!)

This is my first cycle of injectables (Follistim/ovidrel). I've done Clomid and Femara for a total of 6 cycles. I triggered (gave ovidrel shot) on cycle day 10. We did timed intercourse. I had a lead follicle at 17 and I think one about 14 and some around 10. He never told me how many follicles I really had ready...wish I would have asked. Since about Friday cd13 (guess that would be 1dpo). I have had a very tender sides no cramping just very tender. I feel it when I stand up and urinate. Anyone else ever had this feeling?

What patients are talking about

Prices



itchymad

"Crinone. I have used Freedom Drug in the past. 18 doses of 8% for \$149--about the same as what you have found. FWIW, I find Freedom Drug SUPER easy to work with"

Good luck.



AuntSarah

" I had a heart attack when I found out how much Lovenox costs (\$1200/month), and Heparin is also expensive as far as I'm concerned. Luckily my doc prefers heparin, but my insurance won't cover it at all (a whole other story), it was gonna cost me \$250/month . SO, my heparin will now cost me \$35/month, and I can get it at any CVS pharmacy!

Before I found out about the AAA discount, I called around and found that the Walmart Specialty Pharmacy (walmart.com) had the dosage of heparin I need (10,000 units daily) for \$118/month, still a large savings. Thus far I am not in need of any other fertility meds, but the Walmart website did list drugs for fertility on the site.

What patients are talking about

Drug sharing

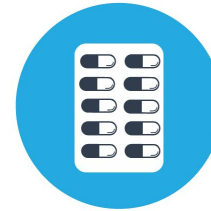


rani235

"Hi,
We have 18 Menopur 75IU
vial's and 2 quantities of ovidrel
250 mcg 15 3cc 22g 11/2
needles, 30g 1/2 needles each.
By god grace we ended up not
using them at all.

With discounted prices
medicines cost us \$1550, we
have all the receipts with us.

If anybody is interested please
let me know, my email is xxxxx
and we are located in Houston



Meadow 15

" I have done 3 IVF already and I
am thinking of a 4th one if I can
afford it. Since the IVF meds are
super expensive. Does anyone
know if there is a site where
people sell their left over meds?
I am sure people have left overs
after a successful IVF and
would love to sell it cheap to get
some money back. Someone
also said you can buy cheaper
IVF meds in Mexico? Have
anyone done that and do you
need to see a doctor or is it
"over the counter" like a lot of
their meds are? And in that case
how much cheaper?
I would be very happy for any
tips. Thank you so much!"









Techniques

Of text Analytics for the Voice of the Patient

1. Extracting entities and concepts





















- *Hysteroscopy: A hysteroscope is a tiny telescope mounted with a fiber optic light, it is used to examine uterine abnormalities (if your HSG indicated uterine abnormality)*
- *Laparoscopy: A surgical procedure, performed under general anesthesia, it is performed around or before ovulation. This procedure allows the doctor to get a clear view of your pelvic cavity including; ovaries, outsides of fallopian tubes and the uterus. In addition, if endometriosis or adhesions are found, a laser can be used to remove them.*
- *Ultrasound: Either abdominal or vaginal ultrasound can be used to visualize the uterus and ovaries. Vaginal ultrasound is more sensitive. Ultrasound is often used to monitor the growth of follicles on the ovary during a cycle or to detect fibroids or ovarian cysts.*

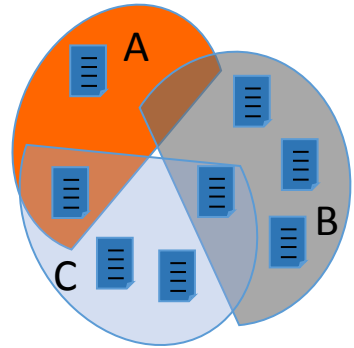
Entity/Concept	Type	Subtype	Appearances	Relevance	Clinical Code
procedure	 Event	TherapeuticOrPreventiveProcedure	2	100	ICD10: 1578
hysteroscopy	 Event	DiagnosticProcedure	1	50	ICD10: 35630-00 68.12
HSG	? Unknown	-	1	50	-
laparoscopy	 Event	HealthCareActivity	1	50	ICD10: 54.21 30390-00 984
general anesthesia	 Event	TherapeuticOrPreventiveProcedure	1	50	ICD10: 1910
ovulation	 Entity	SignOrSymptom	1	50	ICD10: N92.3 626.5
examination	 Event	DiagnosticProcedure	1	50	ICD10: 11621-00 11612-00 1851 1852 11606-00 11618-00 11624-00 11603-00 11609-00

2. Classification

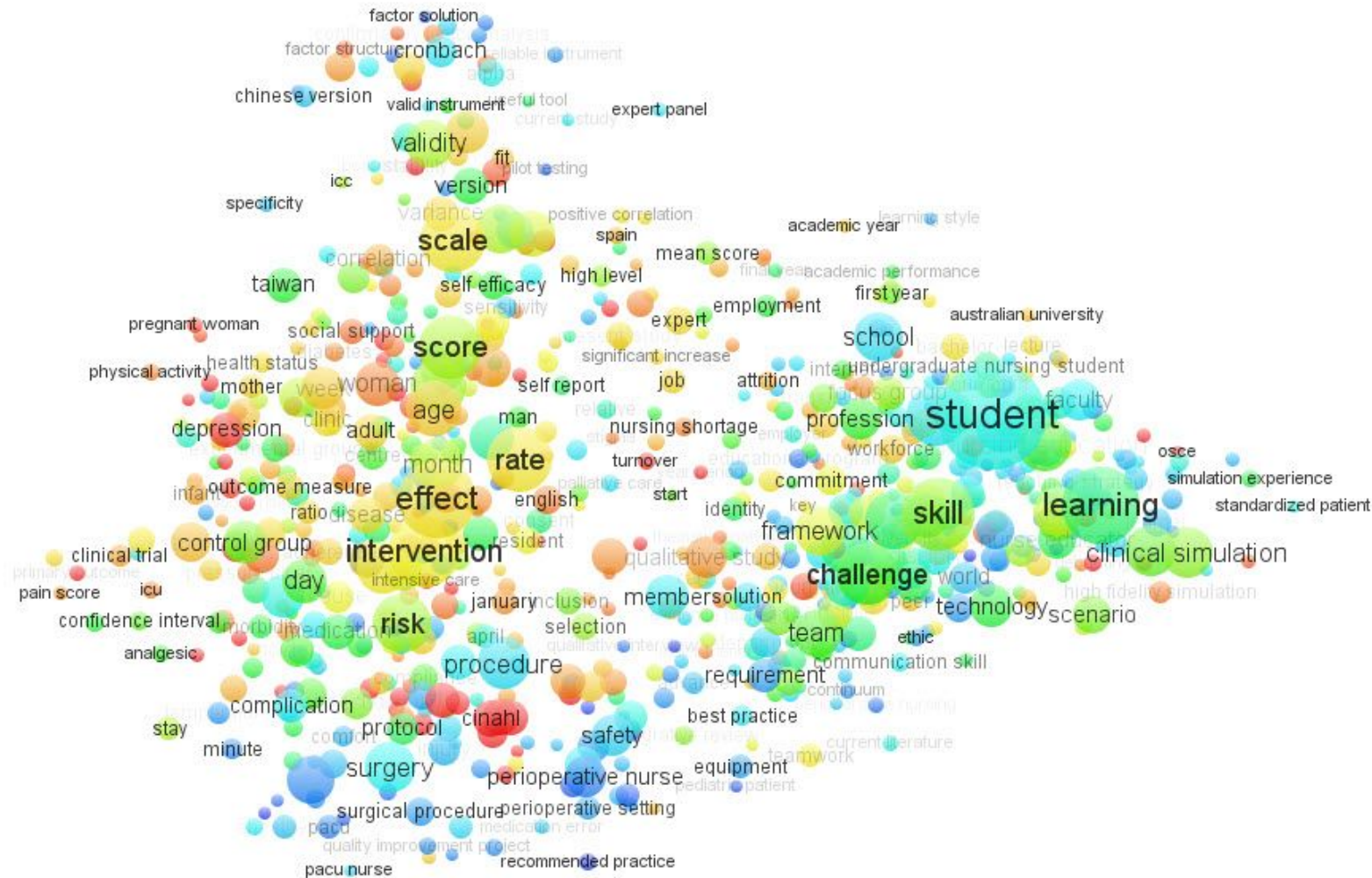
Heparin shot hurts. "I got my first heparin shot this morning and my leg hurt for an hour afterwards. Is heparin usually painful? I'm used to stinging from the Lupron/Cetrotide, but this hurts more and for longer.

*"Hi,
We have 18 Menopur 75IU vial's
and 2 quantities of ovidrel 250
mcg 15 3cc 22g 11/2 needles,
30g 1/2 needles each.
By god grace we ended up not
using them at all...*

Categories ?								
Show 10 ⬇ entries		Search: <input type="text"/>						
Actions	Code	Label	Positive	Negative	Relevant	Irrelevant	Text	Status
 	006	Advice against	5	0	0	0	×	✓
 	014	Benchmarking	4	0	0	0	×	✓
 	002	Dislike	0	0	0	0	×	✓
 	011	Drug-sharing	7	0	36	0	1071 words	✓
 	004	Expectations	3	0	0	0	×	✓
 	013	Help	13	0	3	0	152 words	✓
 	003	Like	3	0	0	0	×	✓
 	008	Maintenance	3	0	2	0	201 words	✓
 	007	Posology-use	0	0	11	0	888 words	✓
 	005	Recommendations	3	0	0	0	×	✓
(11 categories)			Previous 1 2 Next					



3. Text clustering



4. Sentiment analysis

7348	Laura pregunta a ver que se puede hacer pero supongo que ponerte tu congelado si que te lo pondrán vamos, que es tuyo..... Aún así como dice Bola, hazte de la privada para tener un plan B porque así estarás más tranquila. Mum mañana la eco!!! que ganas de conocer a nuestro sobrinito! jeje... es que ya lo siento como nuestro Nerita tenías consulta no? cuéntanos que te han dicho! a ver si te unes a las de septiembre! Chicas pues yo llevo un buen rato con unos pinchazos en el lado derecho.... no hago mas que tocarme y masajearme la zona porque me molesta bastante y estoy asustada la verdad. Ya me ha dado por pensar de todo..... Por lo demás un poco parecido a días atrás, una sensación de mareo por la mierda de la progesterona que me mata, pero resistiré. Mañana al levantarme cae el primer pipitest y aunque no saldrá nada pues ya es una tradición en mi que hay que seguir no?	N	DISAGREEMENT	OBJECTIVE	94	NONIRONIC
7349	Suerte. Mañana.	P	AGREEMENT	OBJECTIVE	100	NONIRONIC
7350	alondra, que tal? sabes algo?	NONE	AGREEMENT	OBJECTIVE	100	NONIRONIC
7351	laura pide q dsde la privada te lo trasladen. suerte alondra como van los pipitest?	NEU	DISAGREEMENT	OBJECTIVE	94	NONIRONIC
7352	Hola niñas Que tal estáis? Como os dije ayer me hice mi primer test y salió una rayita apenas perceptible, pero ahí estaba. No me quise ilusionar porque ya sabemos lo que podía pasar. Yo he visto esas rayitas varias veces y luego nada. Hoy repetí el test y la línea está más marcada y rosa. Sigue siendo clarita, pero se ve perfectamente sin dejarse los ojos, sin la luz del flexo, sin ponerlo en la ventana..... y sale antes de los 3 minutos. Así que se puede decir que mi pingüino se está implantando y puede que todo salga bien. No puedo evitar ilusionarme pero desde hace días tengo un dolor en el lado derecho de la lingle que no me deja pensar en positivo. Pienso que se está agarrando donde no debem que se yo.... Pues nada chicas, mañana repito test porque yo hasta que no vea la linea en color granate fosforito no pararé, es como si no me lo creyera. Y de todos modos, en mi caso el tener un test positivo, incluso una beta positiva, no es para dar palmas porque me quedaría la peor parte.... que se siguiera desarrollando!!! Ay por favor!!!! Necesito toda la suerte del mundo niñas!	P	DISAGREEMENT	SUBJECTIVE	86	NONIRONIC
7353	Un abrazo Mucha suerte alondra. ya verás como esta es la buena, mUcho ánimo cariño. Mañana nos cuentas ese rosa fuerte del pipitest.	P	AGREEMENT	SUBJECTIVE	98	NONIRONIC
7354	Q bien suena esto. Q buena pinta. Bueno, no nos ilusionemos.	P	DISAGREEMENT	SUBJECTIVE	86	NONIRONIC
	Alondra, q genial! Deja de ser agónica, mujer! Q se te va a implantar? en la ingle??? Madre mía! Ni q tu embrión fuera en moto, jaja. Si hay ectópico, no te enteras, no hay dolor hasta q ya han pasado algunas semanas. Lo sé porque en mi 1º aborto, como me salió la beta muy baja, aunque se duplicaba bien, 1 de los médicos no tenía muy claro q no fuera 1 ectópico y por eso cuando estaba de 5 semanas me mandó ya hacer eco para ver si estaba en su sitio o no... Me dijo q el problema es q cuando duele suele ser ya q hay rotura.	NEU	DISAGREEMENT	SUBJECTIVE	81	NONIRONIC

5.1. Profiling from explicit data

The image shows a Twitter profile for a user named [REDACTED] (@smlungpathguy). The profile banner features three book covers: 'Regenerative Practical Guide' (partially visible), 'Pulmonary Pathology: An Algorithmic Approach to Histologic Findings in the Lung', and 'Breast Cytohistology'. The profile picture is a circular image of a man and a woman, with the man's face redacted. The profile statistics are: 30.4K Tweets, 4,804 Following, 5,293 Followers, 30.9K Likes, and 14 Lists. The bio states: 'Pulmonary [REDACTED] Clinic. Dad. Author of lung pathology textbook. All tweets and opinions mine, not employer's. #pulmpath'. The location is 'Cleveland, OH' and the website is 'tinyurl.com/gokddrz'. The user joined in March 2016. A pinned tweet from April 21, 2016, discusses 'Histiocytes in disseminated histoplasmosis' with hashtags #pulmpath, #pathboards, and #cellfie, tagging @AmyHDeekenMD, @JMGardnerMD, and @mannanrifat03. The tweet includes a histology image. On the right, the 'Who to follow' section lists Mezzacorona Wine, singular software, and JOAQUIN CALDERON. The 'Trends' section is partially visible at the bottom.

Annotations:

- Name Tw** points to the profile name [REDACTED].
- Description Tw** points to the bio text.
- City** points to the location 'Cleveland, OH'.
- Date** points to the 'Joined March 2016' text.
- Url** points to the website 'tinyurl.com/gokddrz'.

5.1. Profiling from written texts

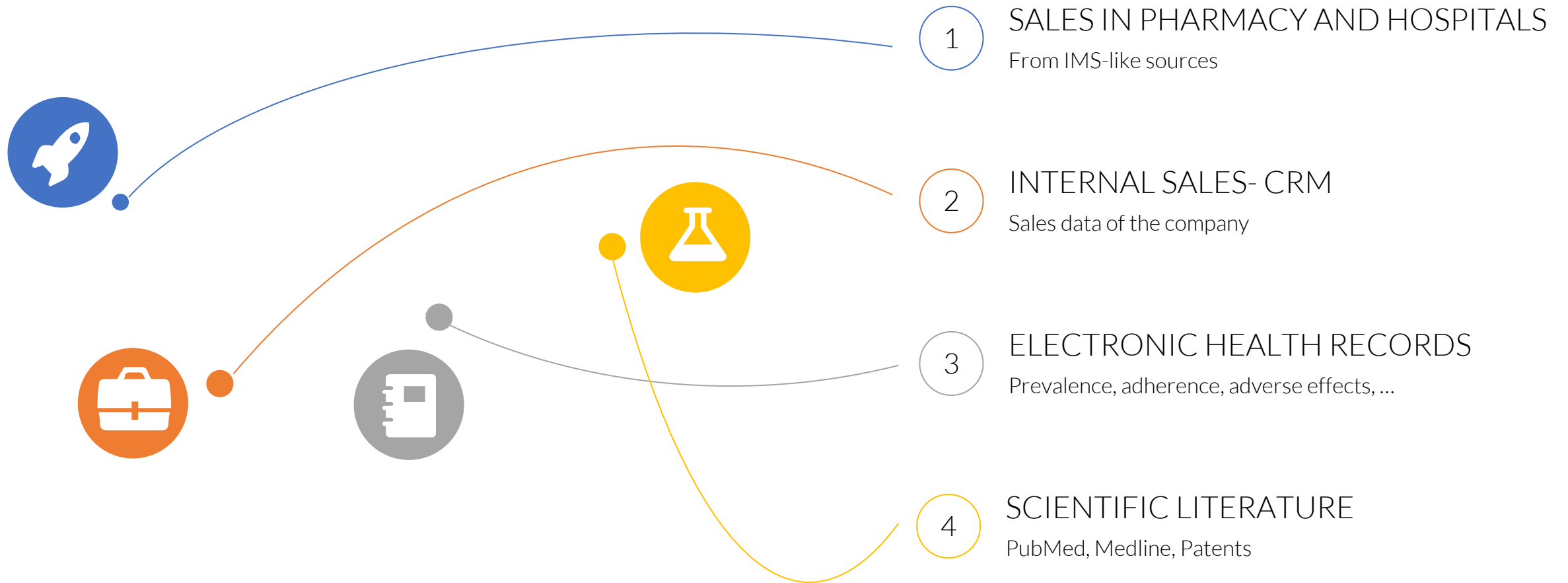
10	Actividad semanal con referencias (2016)	AUTO	13,46062236
11	Edad	AUTO	25-34
12	Familia	AUTO	HasChildren HasSignificantOther
13	Sample tweet	AUTO	La industria no compensará al estado por el gasto farmacéutico, y viceversa https://t.co/GIJlki0i8F
14	Hashtags	AUTO	[farmacia] => 2 [twitter.com] => 13 [elpais.com] => 6 [redaccionmedica.com] => 4

I am always teaching my girls about the myths of fertility...

She mentions her sister in law

LEVERAGE STRUCTURED AND UNSTRUCTURED DATA

ADDING OTHER SOURCES





Products

Analytics products to leverage data

Regular deliverables



Dashboard:
KPIs and insights



Action oriented
recommendations
Alerts



Further discoveries with
Queries



Insights

Benefits of the Voice of the Customer

PROFILING OF STAKEHOLDERS



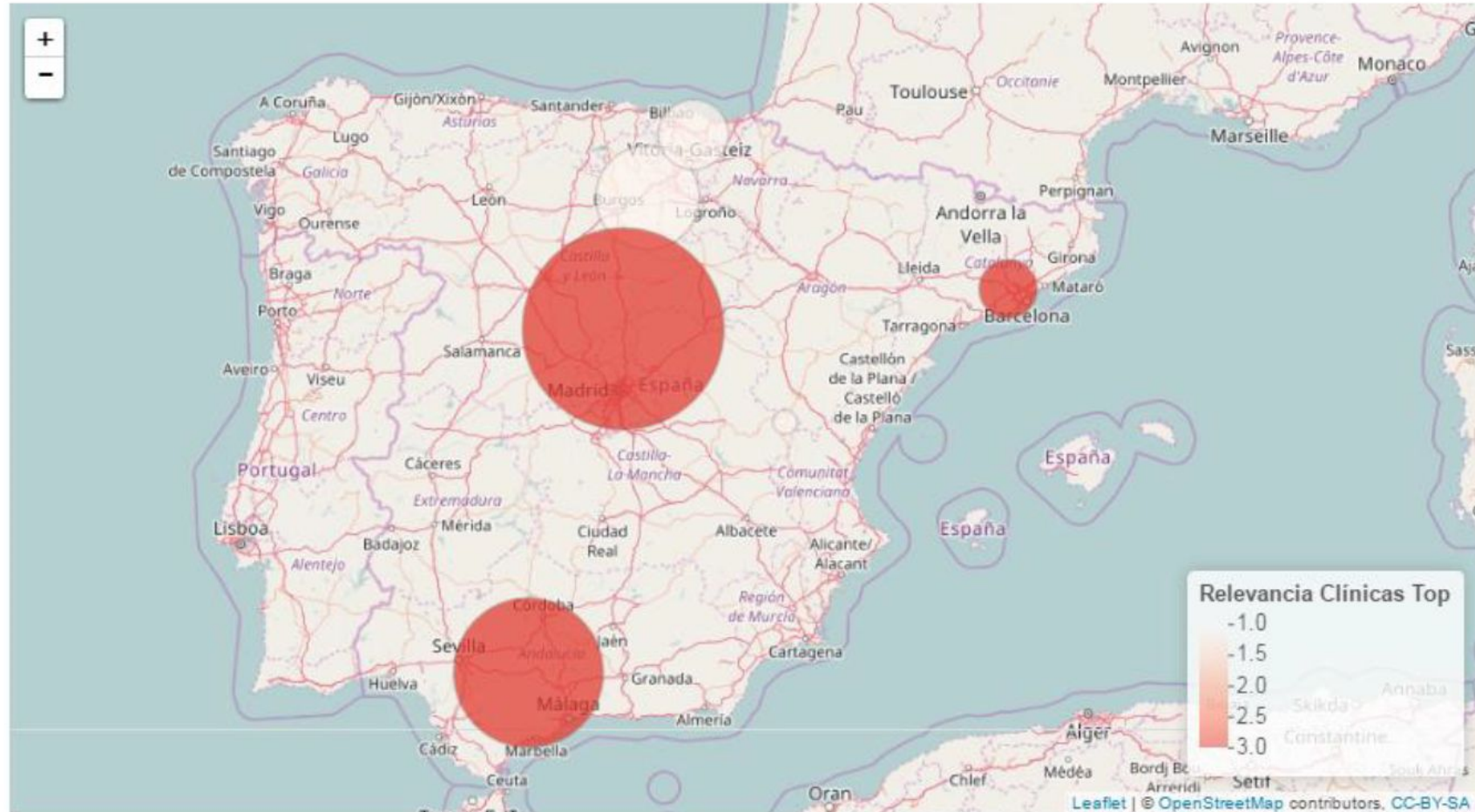
Dashboard 1

RELEVANCE OF CLINICS

Unique users (published): **33**

Unique users (replies): **99**

TIME SERIES

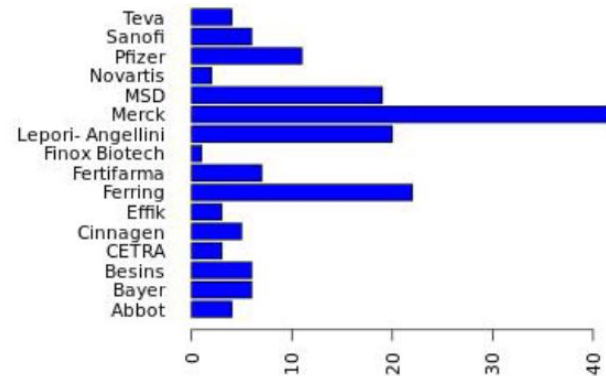


Dashboard 2

PRODUCT RELATED INSIGHTS



BRANDS



BREAKAGE OF STOCK ALERTS

- [\(2\) Puregon pen](#)
- [\(1\)Ovitrelle](#)
- [\(1\) Cetrotide](#)
- [\(2\) Decapeptyl](#)
- [\(2\) Procrin](#)

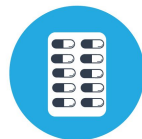


ALERTS ON ADVERSE EFFECTS

- [\(21\) Heparin](#)
- [\(4\) Ovitrelle](#)
- [\(7\) Procrin](#)
- [\(27\)Orgalutran](#)
- [\(138\) more](#)



PRODUCTS



DRUG PRESCRIPTIONS

- [\(932\) Ovitrelle + Cetrotide](#)
- [\(1834\) Procrin + puregon](#)
- [\(221\)Orgalutran + ovitrelle](#)
- [\(3231\) more...](#)



DRUG SHARING ALERTS

- [\(234\) fertilethoughts.com](#)
- [\(133\) Lainfertilidad.es](#)

Dashboard 3



DRUG SHARING ALERTS: fertilethoughts.com

- [Menopur](#)
- [Ovitrelle](#)
- [Procrin](#)
- [Orgalutran](#)
- [Puregon pen](#)
- [Ovitrelle](#)
- [Cetrotide](#)
- [Decapeptyl](#)
- [Procrin](#)

Rani235. Houston

[IVF Medicine available -- Menopur and Ovidrel - Forums](#)

We have 18 Menopur 75IU vial's and 2 quantities of ovidrel 250 mcg 15 3cc 22g 11/2 needles, 30g 1/2 needles each. By god grace we ended up not using them at all.

With discounted prices medicines cost us \$1550, we have all the receipts with us.

If anybody is interested please let me know, my email is xxxxx and we are located in Houston

itssohh

[Sell extra meds](#)

I have 2 full boxes of menopurs left and a full 900iu follistim. I had a lot of eggs and dr lowered my dosages to avoid OHSS. So I ended up with so much left. Would someone want them at 50% off? I started stimulation in Jan 2016. Transferring on the 15th of this month. Fingers crossed!



ADVERSE EFFECTS: HEPARIN

Rgm.

Bruising from heparin injections

I am on my second IVF cycle using heparin and have learned that the bruising is significantly decreased if you inject the heparin slowly. Last time on the heparin, I pushed the plunger at a normal speed and ended up with terrible bruises at the injection site. This time, I have been pushing the plunger down much slower and it has made a big difference in the severity of the bruises. Just thought I would share...

jadjard.

Headaches after stopping Heparin

Anyone have serious headaches stopping heparin. I am assuming it is the heparin because the PIO and Dexamethasone I have done before with no problems. I had the worst headache of my life last night where I felt like I couldn't even function. Not sure if it was a migraine since I've never had one before. But I can't imagine it getting any worse. I thought there was something seriously wrong with me. I woke this morning and was feeling better but I still feel the shooting pains behind my eyes. I know another headache is on the way for today. Could it be the Heparin or just a coincidence?

MenagerieNik

Heparin shot hurts

"I got my first heparin shot this morning and my leg hurt for an hour afterwards. Is heparin usually painful? I'm used to stinging from the Lupron/Cetrotide, but this hurts more and for longer. am on my second IVF cycle using heparin and have learned that the bruising is significantly decreased if you inject the heparin slowly. Last time on the heparin, I pushed the plunger at a normal speed and ended up with terrible bruises at the injection site. This time, I have been pushing the plunger down much slower and it has made a big difference in the severity of the bruises. Just thought I would share..."



To take home

Two Important Facts

- 💬 1. Web forums: untapped source of the Voice of the Patient
- ★ 2. Most valuable market insights when added to other structured data



MeaningCloud LLC

Automating the extraction of Meaning from any information source.



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