Fetal Heart Rate Project

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Database Details

4.					Mark Court	
	row_id	<pre>date_time</pre>	123 mother_encounter_id	123 mother_person_id 🔻	note T	note_title
1	463,149	2018-03-10 07:19:54.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	oblaborprogressnote
2	463,150	2018-03-10 09:38:43.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	oblaborprogressnote
3	463,151	2018-03-10 12:23:45.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	oblaborprogressnote
4	463,152	2018-03-10 15:26:02.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	oblaborprogressnote
5	463,153	2018-03-10 17:24:57.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	oblaborprogressnote
6	463,154	2018-03-10 23:25:01.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	oblaborprogressnote
7	463,155	2018-03-10 21:45:16.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	obpreprocedureverific
8	463,156	2018-03-09 19:44:08.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	obr1onservicenote
9	463,157	2018-03-10 23:25:57.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	obr3note
10	463,158	2018-03-09 17:39:20.000	54,073,291	8,274,574	OB Triage Assessment Ente	obtriageassessment-t
11	463,159	2018-03-11 11:56:23.000	54,073,291	8,274,574	OB Urgent Care Progress N	oburgentcareprogress
12	463,160	2018-03-23 13:07:49.000	54,073,291	8,274,574	Patient Info: ¶Name: ¶[]	operativereport
13	463,161	2018-03-09 16:52:03.000	54,073,291	8,274,574	Patient Factors Form Enter	patientfactors-text
14	463,162	2018-03-09 19:22:07.000	54,073,291	8,274,574	Pneumococcal Immunization	pneumococcalimmuni
15	463,163	2018-03-11 04:42:01.000	54,073,291	8,274,574	Pneumococcal Immunization	pneumococcalimmuni
16	463,164	2018-03-21 14:33:01.000	54,073,291	8,274,574	Post Discharge Follow Up F	postdischargefollowu
17	463,165	2018-03-11 13:57:38.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	postpartumcdprogres
18	463,166	2018-03-12 15:01:54.000	54,073,291	8,274,574	Patient: [], [] MRN: [-	postpartumcdprogres
19	463,167	2018-03-11 06:48:00.000	54,073,291	8,274,574	PRN Response Entered On	prnresponse-text
20	463,168	2018-03-11 06:48:07.000	54,073,291	8,274,574	PRN Response Entered On	prnresponse-text

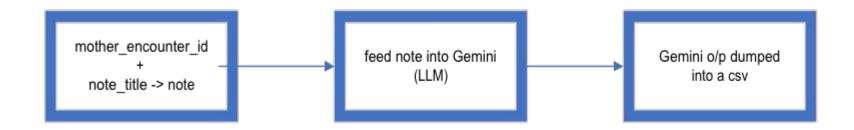
Attributes

- gestational age delivery record
- sex of fetus- delivery record
- mother's age delivery record
- Parity
- Ruptured Membrane
- Fever
- Meconium
- Gestational Hypertension
- Preeclampsia (mild/ w/o severe features)
- Severe Preeclampsia (with severe features)
- Intraamniotic infection

- Lupus
- Antiphospholipid Syndrome
- Asthma
- Tobacco Usage
- Oligohydramnios
- Polyhydramnios
- Cholestasis
- Chronic Kidney Disease
- IVF
- Pregestational Diabetes
- Gestational Diabetes
- Gravidity
- Fetal growth restriction/IUGR

Note identification & Gemini

- Identifying a note based on the mother_encounter_id and the note_title
- Tentatively, we ask the mother_encounter_id and the note_title to identify the note in question
- Ask Gemini to identify a single attribute from the note
- Moved on to ask Gemini to identify multiple attributes from the note



Prompt Engineering

- Tried multiple different ways of asking the LLM for the answer
 - Directly asking with a note does not give effective results
 - Couple of example notes and their expected answer does not give effective result too
 - Went with only one example note and its expected answer and fed it with the actual note.

• Current Prompt:

the list of attributes : ist of attributes>, <example_note> and the <example_format>

Given the above example note and format, from the following note, for all attributes in the attribute list return attribute and value along with sentence containing relevant attribute information in csv format with commas and each attribute having its own row, <actual note>

This is given every time Gemini API is called.

Example Note

Patient: [---], [---] S MRN: [---] FIN: [---] Age: 26 years Sex: Female DOB: [---] Associated Diagnoses: None Author: [---] MD, [---] History of Present Illness 26-year-old G2P[---] at 39 weeks dated by LMP [---] c/w 7 week sono for EDD [---] Pregnancy c/b:1. Hx of PEC with SF in prior delivery- Patient on ASA 162 mg/day - Baseline 24hr urine protein: 139mg2. Rh neg- Received Rhogam for first trimester bleeding on [---]3. Mild intermittent asthma in childhood: one hopsitalization as a child, no intubations, no inhaler in years4. Former smoker: less than 1ppd, quit in early pregnancy5. Migraines: normal MRI, now improved 6. Obesity: BMI 377. Marginal cord insertion- AGA fetus on [---]CC: Patient presents with LOF. She reports that at 2am she was awoken by a contraction, went to the bathroom and had a large gush of yellow fluid. She reports that, at that point, she got in the car to come to the ED, and on the drive started having ctx q5 mins. She denies VB, +FM, Currently the patient stats that she is contracting q3mins, of moderate intensity, and is still leaking fluid. Denies HA, CP, SOB, fever, NV, RUQ pain. Prenatal labs:Blood type: A negative, neg antibody screenH/H: 12.8/38.0Plt: 291kGC: neg[---]: negRPR: NRRubella: immuneVaricella: immuneUrine Cx: negHepBsAg: negHep C: negHIV: negPap: NILM with BVCF screen: Genetic carrier screening: no mutationsNIPTs: 46 XYFirst Trimester Screen: negGBS: negative Histories PMH: deniesPSH: lap cholecystectomyObHx: G2P[---]SocHx: denies smoking, alcohol, illicit drug useAll: dilaudid- itchyMeds: Metformin 500mg ghsaspirin 81mg Pregnancy History Pregnancy History G2 [---],0,0,1 Pregnancy # 1 Baby 1Outcome Date: [---]Neonate Outcome: Live BirthOutcome or Result: VaginalGender: --[---] Age: 40 weeks 4 days Wt: [---] gHospital: --[---] Labor: --Child's Name: --Baby's Father: -- Problem list: All ProblemsAFP -Alpha-fetoprotein raised / SNOMED [---] [---] / ConfirmedObesity / SNOMED [---] [---] / PossibleGestational hypertension / ICD-9-CM 642.90 / ConfirmedRh negative / SNOMED [---] [---] / ConfirmedAt risk of venous thromboembolus / SNOMED [---] [---] / ConfirmedDecreased hemoglobin or hematocrit / ICD-9-CM 285.9 /

Example Format

Example format is given below. \n denotes a new line. That tells Gemini to include new rows on a new line.

Attribute, Value, Sentence /n
Age of Mother, 32, 32 y/o G2P[---] at 37.6 wks.../n
Gestational Age, 37.6, 32 y/o G2P[---] at 37.6 wks.../n
Gravidity, 2, 32 y/o G2P[---] at 37.6 wks.../n
Oligohydramnios, Yes, Patient presents for unscheduled IOL for oligohydramnios./n
Gestational Diabetes, Yes, GDMA2: on NPH 25 units nightly \n

Input Note 1

Current Pregnancy and Risk InformationNo Data

Output 1

Gestational Age	Not mentioned	Current Pregnancy and Risk Infor
Gravidity	6	Pregnancy History G6 [],0,1,4
Parity	1	Pregnancy History G6 [],0,1,4
Ruptured member	Not mentioned	No relevant data in provided note
Pyrexia/Severe I	Not mentioned	No relevant data in provided note.
Meconium	Not mentioned	No relevant data in provided note.
Gestational Hype	Not mentioned	No relevant data in provided note
Preeclampsia	Not mentioned	No relevant data in provided note
Lupus	Not mentioned	No relevant data in provided note
Antiphospholipid	Not mentioned	No relevant data in provided note
Asthma	Not mentioned	No relevant data in provided note
Tobacco Usage	Never	Tobacco use: Never (less than 10
Oligohydramnios	Not mentioned	No relevant data in provided note
Cholestasis	Not mentioned	No relevant data in provided note
Chronic Kidney I	Not mentioned	No relevant data in provided note
IVF	Not mentioned	No relevant data in provided note
Pregestational D	Not mentioned	No relevant data in provided note
Gestational Diab	Not mentioned	No relevant data in provided note

Input Note 2

Mother of baby is a 31 year old g2p2 female, delivered a baby boy "[---]" at 38.4 weeks gestation via c/s. SW was consulted for hx of etoh/substance use. SW met with MOB alone at bedside, role of SW has been explained. MOB was breastfeeding, somewhat guarded. MOB indicated she resides in a private home in [---] with her significant other [---] and their 1 yo. MOB reports she also has two stepchildren from FOB. MOB indicated she is employed as an RN at Pilgrim State Psych and will have time for maternity leave. FOB is also employed full time as per MOB. MOB does not receive WIC or any other forms of PA.MOB admits to a hx of anxiety in which she indicated is "situational." MOB denies ever being rx'ed medications to cope with anxiety. Hx of depression denied. Education provided on Postpartum Depression and baby blues. MOB verbalized an understanding and also denied hx of same. MOB reports to having an extensive support system. MOB admits to a hx of alcohol abuse at age 16 and completed an inpatient rehab. MOB reports "it is all resolved now, i am good." SW provided support and praise. MOB did not elaborate further. MOB drives, denies any barriers to follow up care for herself or newborn. Pediatrician will be Dr. [---] [---]. Infant will be added to FOB's insurance ([---]).SW provided resource packet- PPD/mental health, pregnancy postpartum, community resource list. Emotional support has been provided. No discharge needs indicated. Case discussed with team. [---] [---], LCSW S[---]beeper# [---]

Output 2

Gestational Age (weeks)	38.4	Mother of baby is a 31 year old g2p2 female, delivered a baby boy "[]" at 38.4 weeks gestation via c/s			
Sex of Fetus	Male	Mother of baby is a 31 year old g2p2 female, delivered a baby boy "[]" at 38.4 weeks gestation via c/s			
Mother's Age (years)	31	Mother of baby is a 31 year old g2p2 female, delivered a baby boy "[]" at 38.4 weeks gestation via c/s			
Liq. praecox	Not mentioned	Liq. praecox absent from excerpt.			
Gravidity	2 (g2)	Mother of baby is a 31 year old g2p2 female, delivered a baby boy "[]" at 38.4 weeks gestation via c/s			
Parity	2 (p2)	Mother of baby is a 31 year old g2p2 female, delivered a baby boy "[]" at 38.4 weeks gestation via c/s			
Ruptured membrane	Not mentioned	Ruptured membrane absent from excerpt.			
Pyrexia/Severe Fever	Not mentioned	Pyrexia/Severe Fever absent from excerpt.			
Meconium	Not mentioned	Meconium absent from excerpt.			
Gestational Hypertension	Not mentioned	Gestational Hypertension absent from excerpt.			
Preeclampsia	Not mentioned	Preeclampsia absent from excerpt.			
Lupus	Not mentioned	Lupus absent from excerpt.			
Antiphospholipid Syndrome	Not mentioned	Antiphospholipid Syndrome absent from excerpt.			
Asthma	Not mentioned	Asthma absent from excerpt.			
Tobacco Usage	Not mentioned	Tobacco Usage absent from excerpt.			
Oligohydramnios	Not mentioned	Oligohydramnios absent from excerpt.			
Cholestasis	Not mentioned	Cholestasis absent from excerpt.			
Chronic Kidney Disease	Not mentioned	Chronic Kidney Disease absent from excerpt.			
IVF	Not mentioned	IVF not mentioned in excerpt.			
Pregestational Diabetes	Not mentioned	Pregestational Diabetes absent from excerpt.			
Gestational Diabetes	Not mentioned	Gestational Diabetes not mentioned.			

Input Note 3

OB Triage Assessment Entered On: [---] EDT Performed On: [---] EDT by [---] RN, [---] General Info Arrived From: Home Arrival Mode: Ambulatory Pt Exposure to Metal Fragment or Device: No Last Menstrual Period: No qualifying data available. OB Provider Groups: [---] [---] Medicine (staff) Prenatal Care: Adequate [---] RN, [---] - [---] EDT Subjective Reason For Visit OB: Abdominal pain, Labor check, Other: Prev. C-sec. x4 Fetal Movement: Present Last Fetal Movement Date/Time: [---] EDT Contraction Frequency (min): irreg. Urge to Push: No Contractions: Yes Contraction Onset Date/Time: [---] EDT Leaking Fluid: No Bleeding: No OB Triage Acuity: 3 [---] RN, [---] - [---] EDT Transcribed Prenatal Labs Transcribed Prenatal Blood Type: A Transcribed Prenatal RH Type: Positive Transcribed Prenatal RPR Status: Negative Transcribed Prenatal Hep B Surface Antigen: Negative Transcribed Prenatal HBsAg Date: [---] EST Maternal HepBsAG Result on Chart: Yes Transcribed Prenatal GBS Status: Negative Transcribed Prenatal GBS Status Date: [---] EDT Transcribed Prenatal HIV Status: Negative [---] RN, [---] - [---] EDT Transcribed Prenatal HIV Status Date: [---] EDT [---] RN, [---] - [---] EDT [[---] EST] - previously charted by [---] RN, [---] at [---] EDT; Prenatal Information Antepartum Risk Factors Additional Information: Reviewed with patient, document changes Antepartum Information: Current Pregnancy and Risk InformationNo Data Date: [---] Neonate Outcome: Live Birth Outcome or Result: C-Section Gender: Female [---] Age: 40 weeks Wt: [---] q Hospital: -- [---] Labor: -- Child's Name: -- Baby's Father: --Pregnancy # 2 Baby 1 Outcome Date: [---] Neonate Outcome: Live Birth Outcome or Result: C-Section Gender: Male [---] Age: 39 weeks Wt: [---] a Hospital: -- [---] Labor: -- Child's Name: -- Baby's Father: -- Pregnancy # 3 Baby 1 Outcome Date: [---] Neonate Outcome: Live Birth Outcome or Result: C-Section Gender: Male [---] Age: 39 weeks Wt: [---] q Hospital: -- [---] Labor: -- Child's Name: -- Baby's Father: -- Pregnancy # 4 Baby 1 Outcome Date: [---] Neonate Outcome: Fetal Death Outcome or Result: Spontaneous Abortion Gender: -- [---] Age: 7 weeks Wt: -- Hospital: -- [---] Labor: -- Child's Name: -- Baby's Father: -- Pregnancy # 5 Baby 1 Outcome Date: [---] Neonate Outcome: Live Birth Outcome or Result: C-Section Gender: Female [---] Age: 39 weeks Wt: [---] g Hospital: -- [---] Labor: -- Child's Name: continued)

Output 3

Gestational Age (weeks)	Not mentioned	No information within excerpt provided./n
Mother's Age (years)	Not mentioned	No information within excerpt provided./n
Gravidity	6	G6 [],0,1,4/n
Parity	0	G6 [],0,1,4/n
Liq. praecox	Not mentioned	No information within excerpt provided./n
Ruptured membrane	Not mentioned	No information within excerpt provided./n
Pyrexia/Severe Fever	Not mentioned	No information within excerpt provided./n
Meconium	Not mentioned	No information within excerpt provided./n
Gestational Hypertension	Not mentioned	No information within excerpt provided./n
Preeclampsia	Not mentioned	No information within excerpt provided./n
Lupus	Not mentioned	No information within excerpt provided./n
Antiphospholipid Syndrome	Not mentioned	No information within excerpt provided./n
Asthma	Not mentioned	No information within excerpt provided./n
Tobacco Usage	Never (less than 100 in lifetime)	Tobacco use: Never (less than 100 in lifetime). Smokeless Tobacco use: Never./n
Oligohydramnios	Not mentioned	No information within excerpt provided./n
Cholestasis	Not mentioned	No information within excerpt provided./n
Chronic Kidney Disease	Not mentioned	No information within excerpt provided./n
IVF	Not mentioned	No information within excerpt provided./n
Pregestational Diabetes	Not mentioned	No information within excerpt provided./n
Gestational Diabetes	Not mentioned	No information within excerpt provided./n
Correct		

Precision and Accuracy

Precision = 86.13%. For 14% of returned attributes, Gemini tends to extract incorrect information.

Accuracy = 95.32% i.e. High correctness rate for true negatives, but some attributes can go missing in response.

29th April - Objectives

- Attributes Temporal and non-temporal attributes
 - Frequency analysis with 'admission' and 'h&p'
- Bert Similarity search
- LLM Used : Gemini

Attributes

- Two types of attributes
 - Attributes without Temporal aspect
 - Eg. Lupus, Asthma, Tobacco Usage
 - Attributes with Temporal aspect
 - Need them at admission and at delivery record
 - Eg. Meconium
- Started with the attributes without temporal aspect
- Scanning the notes with note titles having either 'admission' or 'h&p' in the title

Attributes - w/o temporal

- Lupus
- Antiphospholipid Syndrome
- Asthma
- Tobacco Usage
- Oligohydramnios
- Polyhydramnios
- Cholestasis
- Chronic Kidney Disease
- IVF
- Pregestational Diabetes
- Gestational Diabetes
- Gravidity
- Fetal growth restriction/IUGR
- Marginal cord insertion (MCI)
- Velamentous cord insertion (VCI)

Attributes - with temporal

- Parity
- Ruptured Membrane
- Fever
- Meconium
- Gestational Hypertension
- Preeclampsia (mild/ w/o severe features)
- Severe Preeclampsia (with severe features)
- Intraamniotic infection

Do not have temporal aspect but have to be taken from delivery record

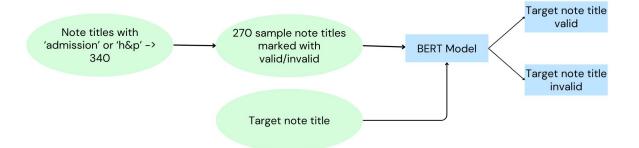
- Gestational age
- sex of fetus
- mother's age

Note titles

- Filtered the note tiles based on 'h&p' or 'admission'
- Frequency analysis of the no of notes and the titles
- The top note titles with admission or 'h&p' titles are

Note title	Count
obadmissionh&p	2477
oblaboradmission	1294
obadmissionh&pl&d	1008
obioladmissionh&p	646
obadmissionnote	584
obscheduledcdh&p*	456
obl&dadmissionh&p	138
oblaboradmissionh&p	133

BERT similarity search model



Accuracy of model is around 96%.

Note title filtering

There were a total of 340 note titles with either admission or h&p

A sample of the 270 note titles used for similarity search. Each note title has its validity - if the note is a valid admission h&p note or not - alongside

Fed remaining note titles to the BERT similarity search model and it compares the title to the closest match among the sample dataset

note_title	valid
admissionh&p	1
admissionh&pforiol	1
admissionh&piol	1
admissionh&pl&d	1
anteadmissionh&p	1
antepartumadmissionh&p	1
attendingadmissionh&p	1
cardiothorasicsurgeryadmissionh&p	0
ccucardiologyadmissionh&p	0
cesareanadmissionh&p	1
csadmissionh&p	1
icuadmissionh&p	0
ioladmissionh&p	1
iolobadmissionh&p	1
l&dadmissionh&p	1
medicineeadmissionh&p	1
midwifeadmissionh&p	1
midwifeadmissionh&pl&d	1
midwifeioladmissionh&p	1
midwiferyobioladmissionh&p	1
obactiveadmissionh&p	1
obadmissionandh&pnote	1
obadmissioncesareandeliveryh&p	1
ohadmissionforoligoh&n	1

Steps followed

The FHR database contains admission records for each encounter. However, the note title of the admission record varies across mothers, often including the terms 'admission' and 'h&p'. In order to filter the right note for attribute information extraction, we do the below:

- 1) We fetch notes for a particular encounter.
- 2) For each note, we check the validity of the note for information extraction, by measuring the similarity of the note title with a set of manually labelled valid note titles.
- 3) Similarity is measured with a set of parameters including presence of certain terms like 'admission' and 'h&p' and absence of certain terms like 'icu', 'ccu' etc.
- 4) Attribute information is extracted from the valid note.

Examples

Attribute	Value	Sentence		
Gestational Age (weeks)		32 y.o. G_3 P1_ at 39.4_ wks by LMP		
Sex of Fetus	Not mentioned	Information about sex of fetus absent from excerp		
Mother's Age (years)	32	32 y.o. G_3 P1_ at 39.4		
Liq. praecox	Not mentioned	Liq. praecox not mentioned.		
Gravidity	3 (G3)	32 y.o. G_3 P1_ at 39.4		
Parity	1 (P1)	32 y.o. G_3 P1_ at 39.4		
		Ruptured membrane not mentioned.		
Pyrexia/Severe Fever	Not mentioned	Pyrexia/Severe Fever absent from excerpt.		
Meconium	Not mentioned	Meconium absent from excerpt.		
Gestational hypertension	Not mentioned	Gestational hypertension not mentioned.		
Preeclampsia	Not mentioned	Preeclampsia not mentioned.		
Lupus	Not mentioned	Lupus absent from excerpt.		
Antiphospholipid Syndrom	Not mentioned	Antiphospholipid Syndrome absent from excerpt.		
Asthma	Not mentioned	Asthma absent from excerpt.		
Tobacco Usage	Former smoker,	Tobacco: []; Use: Former smoker, quit more;		
Oligohydramnios	Not mentioned	Oligohydramnios absent from excerpt.		
Cholestasis	Not mentioned	Cholestasis absent from excerpt.		
Chronic Kidney Disease	Not mentioned	Chronic Kidney Disease absent from excerpt.		
IVF	Not mentioned	IVF not mentioned.		
Pregestational Diabetes	Not mentioned	Pregestational Diabetes absent from excerpt.		
Gestational Diabetes	Not mentioned	Gestational Diabetes not mentioned.		

```
of [---]EDD: [---]EGA*: 39 weeks 4 days Type: AuthoritativeMethod Date: [---]Method: Last Menstrual Period ([---])Confirmation: ConfirmedDescription: --Comments: --Entered by: [---], [---]
on [---] Other EDD Calculations for this Pregnancy: No additional EDD calculations have been recorded for this pregnancy. Is the patient admitted with spontaneous labor?: Yes, Patient has no
history of Cesarean Birth History of Present Illness 32 y/o G3P1 39.4 weeks presents c/o regular contractions since [---], now Q2 min strong intensityDenies lof or vaginal bleeding, endorse
good fetal movements Mild rectal pressure, GBS negative, closely spaced pregnancy hx LEEP. Planned unmedicated birth Presents with supportive partner Presented with .[ + ] fetal
PresentingFetalDateHt(cm)S&SDileff(%)StakglbsBPProtGlucPartFHRActivitv[---]3991.6202[---]/68140[---]3992.8[---]106/68125[---]3891.4202106/[---]148 (c)[---]89.6198120/72[---][---]
None89.6198[---]/69145[---]3389.8198120/68146[---]30None86.7191[---]/[---]130[---]29None86.8191115/65128[---]85.1188115/67[---]82.9183120/62[---]23None83.5184124/[---]148[---]19None80176106
72140[---]1778.2172[---]/60135[---]1276.1168100/[---][---]976.8169102/60Next Visit:. Review of Systems Constitutional: Negative. Respiratory: Negative. Cardiovascular: Negative. Gynecologic
Negative. Psychiatric: Negative. Health Status Allergies: Allergic Reactions (All)UnknownNeosporin- No reactions were documented.Canceled/Inactive Reactions (All)NKA Current medications:
Home Medications (4) Activecholecalciferol, Oralhydrocortisone topical1 application, Per Rectum, TIDinulin: 3 g =, TIDmultivitamin, prenatal, Oral, Once daily, Medications (2)
ActiveScheduled: (1)Lactated Ringers Injection intravenous solution 250 mL, Bolus IV, OneDoseUnschContinuous: (1)Lactated Ringers 1,000 mL, Continuous IV, 125 mL/hrPRN: (0),
(Selected) Inpatient MedicationsOrderedLactated Ringers Bolus: 250 mL, Bolus IV, Infusion Rate: 1,000 mL/hr, OneDoseUnsch, First dose is STAT, [---] EDT, for non reassuring fetal status,
Category 2 or 3 fetal heart tracings or heavy vaginal bleedingLactated Ringers Injection intravenous solution 1,000 mL; 1,000 mL, Continuous IV, First dose is Routine, [---] EDT, 125 mL/hr,
8 hr, Order Weight 91.6 kg, Populate Charting Weight From OrderOutpatient MedicationsOrderedtetanus/diphth/pertuss (Tdap) adult/adol: 0.5 mL, IntraMuscular, [---], First dose is Routine,
[---] EDT, Stop date [---] EDTPrescriptionsPrescribedAnusol-HC 2.5% rectal cream with applicator: = 1 application, Per Rectum, TID, # 30 g, 0 Refill(s), Indication: Inflammation, [---] EDT,
Pharmacy: Walgreens Drug Store [---], 1 application Per Rectum TIDDocumented MedicationsDocumentedFiber Choice: = 3 g, TID, 0 Refill(s), [---] EDTPrenatal Multivitamins: Oral, Once daily, 0
Refill(s), [---|Vitamin D3: Oral, 0 Refill(s), Indication: Vitamin, [---] EDT, PNV Problem list: All ProblemsFamily history of lung cancer / SNOMED CT [---] / ConfirmedObesity / SNOMED CT
[---] / PossiblePregnant / SNOMED CT [---] / ConfirmedResolved: ASCUS with positive high risk HPV cervical / SNOMED CT [---]Resolved: Cervical high risk HPV (human papillomavirus) test
positive / SNOMED CT [---]Resolved: Complete miscarriage / SNOMED CT [---]Resolved: Pregnant / SNOMED CT [---] Histories Pregnancy History Pregnancy
History G3 [---],0,1,1 Pregnancy # 1 Baby 10utcome Date: [---]Neonate Outcome: Fetal DeathOutcome or Result: Spontaneous AbortionGender: --[---] Age: 7 weeks Wt: --Hospital: --[---]
Labor: --Child's Name: --Baby's Father: --Pregnancy # 2 Baby 10utcome Date: [---]Neonate Outcome: Live BirthOutcome or Result: VaginalGender: Male[---] Age: 39 weeks 4 days Wt: [---]
gHospital: --[---] Labor: --Child's Name: --Baby's Father: -- Past Medical History: ResolvedASCUS with positive high risk HPV cervical ([---]): Onset on [---] at 32 years. Resolved.Complete
miscarriage ([---]): Onset on [---] at 30 years. Resolved. Cervical high risk HPV (human papillomavirus) test positive ([---]): Onset in [---] at 21 years. Resolved. Prenatal History Prenata
labs Blood type: A, Rh positive. Rapid plasma reagin: nonreactive. Hepatitis: Hepatitis B Surface Antigen Negative, HepatitisC Antibody Negative. Human immunodeficiency virus: negative.
```

Group B Strep: negative. Chlamydia: negative. Gonorrhea culture: negative. Rubella: immune, Varicella: immune. No Data Available Current pregnancy Obesity (BMI 30-39)+. Family History: Celiac diseaseAunt (paternal)Diabetes mellitusGrandfather-Maternal (Deceased)Lung CancerGrandmother-Maternal (Deceased)Grandfather-Paternal (Deceased)Sepsis...Grandmother-Paternal (Deceased)Lymphoma, diffuse large B cell, non HodgkinsUncle (paternal) Procedure history: Colposcopy of cervix ([---]) on [---] at 32 Years.leep in [---] at 22 Years.BIOPSY OF CERVIX W/SCOP ([---]) in [---] at 21 Years.Fissurectomy with sphincterotomy ([---]). Social History Social & Psychosocial HabitsAlcohol: [---]; Use: Denies; Home/Environment: [---]; Lives with: Children, Spouse; Feel Unsafe At Work/Home No; Human Traffic/[---] Violence Possibility No; Substance Abuse: [---]; Use: Denies; Tobacco: [---]; Use: Former smoker, quit more; Smokeless tobacco use: Never; Screening, Brief Intervention and Referral for Treatment: [---]; In the past 12 months have you used drugs other than those r No; Over the last 2 weeks, have you been bothered by little inte Not At All; Over the last 2 weeks, have you been bothered by feeling dow Not At All; In the past 12 months, how often do you have a drink contain Never; In the past 12 months, how many drinks containing alcohol do None; In the past 12 months, how often did you have 6 (Female), 8 Never; Review / Management Results review Physical Examination Vital Signs (last

mmHG||Mean Arterial Pressure|82 mmHG| Measurements from flowsheet: Measured Height/Weight [---] EDT|Height|170 cm||Weight|91.6 kg||How Weight Measured|Stated||Body Mass Index|31.7 kg/m2 HI||BSA|2.[---] m2|[---] EDT|Height|170 cm||Weight|91.6 kg||Body Mass Index|31.7 kg/m2 HI||BSA|2.[---] m2| General: Alert and oriented. Respiratory: Lungs are clear to auscultation. Cardiovascular: Normal rate, Regular rhythm. Gastrointestinal: Soft, Normal bowel sounds. Musculoskeletal No tenderness. No swelling. SVE: 9.5 / 100/ 0Membranes: [+] intact bulging membranes EFW: _ lbs by [_] [---] [_] sonoEFM: 140_ bpm, mod var, _+ accels, _variable decelsToco: [Q2min _] none [_] Presentation: [_+] cephalic by leopolds/SVE [__] cephalic by

sonoSono: Impression and Plan Diagnosis Normal labor. Fetal condition: Stable. Maternal condition: Stable. Plan Admit. ConsentsOB labsEFMAnticipate vaginal birth

[---] hrs) Last Charted

Weight91.6 kg ([---] [---]) Height170 cm ([---] [---]) Measured Vital Signs [---] EDT|Blood Pressure Systolic|[---] mmHG||Blood Pressure Diastolic|68

wks by LMP 10 /27 /18 consistent with 8 wk ultrasound for EDD of 8 / 3 / 19 . Prenatal Care with Centering [---] office [] uncomplicated [] complicated by: BMI 31, hx Leep, closely spaced pregnancy Basic Information Reason for admission: Labor. Informed consent obtained for anesthesia, procedure and blood transfusion. Gestational Age: * Note: EGA calculated as

Patient: [---], [---] K MRN: [---] FIN: [---] Age: 32 years Sex: Female DOB: [---] Associated Diagnoses: Normal labor Author: [---], [---], [---] Chief Complaint 32 y.o. G 3 P1 at 39.4

Examples

Value	Sentence
37	30 y.o. G1 P0 at 37 wks by LMP \[\] consistent with 8 wk ultrasound for EDD of \[\]."
Not mentioned	Information about sex of fetus absent from excerpt.
30	30 y.o. G1 P0 at 37 wks by LMP \[\] consistent with 8 wk ultrasound for EDD of \[\].
Yes	History of Present Illness 30 y.o. G1 P0 at 37 wks by LMP \[\] consistent with 8 wk ultrasound for EDD of \[\]Presented with \[_\] fetal movement\[_\] contractions\[x\] leakage of fluctures and the second sec
1 (G1)	30 y.o. G1 P0 at 37 wks by LMP \[\] consistent with 8 wk ultrasound for EDD of \[\].
0 (P0)	30 y.o. G1 P0 at 37 wks by LMP \[\] consistent with 8 wk ultrasound for EDD of \[\].
Yes (PROM)	Reason for admission: PROM - Premature Rupture of Membranes.
Not mentioned	Pyrexia/Severe Fever absent from excerpt.
Not mentioned	Meconium absent from excerpt.
Not mentioned	Gestational hypertension absent from excerpt.
Not mentioned	Preeclampsia absent from excerpt.
Not mentioned	Lupus absent from excerpt.
Not mentioned	Antiphospholipid Syndrome absent from excerpt.
Not mentioned	Asthma absent from excerpt.
Never smoker	Smoking History: Never (less than 100 in I Smokeless tobacco use: Never\[\] Use: Never (less than 100 in I Smokeless tobacco use: Never
Not mentioned	Oligohydramnios absent from excerpt.
Not mentioned	Cholestasis absent from excerpt.
Not mentioned	Chronic Kidney Disease absent from excerpt.
Not mentioned	IVF absent from excerpt.
Not mentioned	Pregestational Diabetes absent from excerpt.
Not mentioned	Gestational Diabetes absent from excerpt.
	Not mentioned 30 Yes 1 (G1) 0 (P0) Yes (PROM) Not mentioned

```
the patient admitted with spontaneous labor?: No. Gestational age 37wks to 38wks and 6 days, is this elective delivery?: No. Indication for delivery: PROM. Patient has no history of Cesarear
Birth Chief Complaint History of Present Illness 30 y.o. G1 PO at 37 wks by LMP [---] consistent with 8 wk ultrasound for EDD of [---]. Prenatal Care with midwives [x] uncomplicated [ ]
complicated by:Presented with [ ] fetal movement[ ] contractions[ x ] leakage of fluid [Date: [---] at [---] am [[ ] vaginal bleeding Visit AssessmentsPre-WeightFundalterm-------
Cervix------Measured------Urine-----PresentingFetalDateHt(cm)S&SDilEff(%)StakglbsBPProtGlucPartFHRActivity[---]81.8180121/76[---]81.8180108/68[---][---]
None79.8176[---]/68150[---]33None78.7174122/60140[---]30None76.5169122/68140[---]29None76.3168[---]/60152[---][---]None72.4160[---]/60145[---]/68.3151[---]/[---]
[---]20None[---].9147[---]/60148[---]1564.9143120/60160[---]63.1139100/60[---]62.4138[---]/60Next Visit:. Review of Systems Constitutional: Negative. Respiratory: Negative. Cardiovascular:
Negative. Gynecologic: Negative. Health Status Allergies: Allergic Reactions (All)MildPenicillin- No reactions were documented., Allergies (1) ActiveReactionpenicillinNone Documented Current
medications: Medications (3) ActiveScheduled: (2)CeFAZOlin 2 g / D5W 50 mL 2 g 50 mL, IVPB, INT-Q8HLactated Ringers 250 mL, Bolus IV, OneDoseUnschContinuous: (1)Lactated Ringers 1,000 mL
```

1,000 mL, Continuous IV, 125 mL/hrPRN: (0), (Selected) Inpatient MedicationsOrderedLactated Ringers Bolus: 250 mL, Bolus IV, Infusion Rate: 1,000 hr, OneDoseUnsch, First dose is STAT, [---] EDT, 0 mL/hr, Infuse over 0, for non reassuring fetal status, Category 2 or 3 fetal heart tracings or heavy vaginal bleedingLactated Ringers Injection intravenous solution 1,000 mL: 1,000 mL, Continuous IV, First dose is Routine, [---] EDT, 125 mL/hr, 8 hr, Order Weight 81.8 kg, Populate Charting Weight From OrderceFAZolin: 2 g, IVPB, IVPB, INT-Q8H, First dose is STAT, [---] EDT, 100 mL/hr, 0.5 hr, Antibiotic Indication Other, until deliveryDocumented MedicationsDocumentedmultivitamin, prenatal: Oral, 0 Refill(s), Indication: Vitamin, [---], PNV Problem list: All ProblemsGroup A beta-hemolytic streptococci / SNOMED [---] [---] / ConfirmedPregnant / SNOMED [---] / ConfirmedPregnant | ConfirmedPregnant / SNOMED [---] / ConfirmedPregnant / SNOMED [----] / ConfirmedPregnant / SNOMED [----]

SNOMED [---] / Confirmed Histories Past Medical History: No active or resolved past medical history items have been selected or recorded. Procedure history: No active procedure history

items have been selected or recorded. Pregnancy History Pregnancy History G1 P0,0,0,0 No previous pregnancies history have been recorded Family History: No family history items have been selected or recorded. Social History Social & Psychosocial HabitsAlcohol[---] Use: Denies[---] Use: DeniesHome/Environment[---] Lives with: Spouse Living situation: Home/Independent Feel Unsafe At Work/Home No Human Traffic/[---] Violence Possibility No Safe place to go: Yes Injuries/Abuse/Neglect in household: No Smoker in household: No Alcohol abuse in household: No Substance abuse in household: NoSexual[---] Sexually active: YesSubstance Abuse[---] Use: Denies[---] Use: DeniesTobacco[---] Use: Never (less than 100 in 1 Smokeless tobacco use: Never[---] Use: Never (less than 100 in 1 Smokeless tobacco use: NeverScreening, Brief Intervention and Referral for Treatment[---] In the past 12 months have you used drugs other than those r No Over

the last 2 weeks, have you been bothered by little inte Not At All Over the last 2 weeks, have you been bothered by feeling dow Not At All In the past 12 months, how often do you have a

drink contain Never In the past 12 months, how many drinks containing alcohol do None In the past 12 months, how often did you have 6 (Female), 8 Never, Prenatal History Prenatal labs Blood

Gonorrhea culture: negative. Rubella: non-immune, Varicella: . Varicella: immune. No Data Available Current pregnancy No complications. Physical Examination Vital Signs (last [---] Temp Oral36.5 DegC ([---] [---])SBP121 mmHG ([---] [---])DBP76 mmHG ([---] [---])Weight81.8 kg ([---] [---])Height177.8 cm ([---] [---]) General: Alert and hrs) Last Charted

type: A, Rh positive. Rapid plasma reagin: nonreactive. Hepatitis: Hepatitis B Surface Antigen Negative. Human immunodeficiency virus: negative. Group B Strep: positive. Chlamydia: negative.

oriented. Respiratory: Respirations are non-labored. Cardiovascular: Normal rate. Gastrointestinal: Soft, Normal bowel sounds. Musculoskeletal No tenderness. No swelling. SVE: // [x]

deferred Appears closed on sterile speculum examMembrane Status: [] intact [] gross leakage [x] positive pooling [x] positive ROM plusEFW: 7 lbs by [x] [---] [] sonoEFM: 145 bpm,

mod var, accels, decelsToco: [] none [x] occasionallyPresentation: [x]cephalic by leopolds/SVE [] cephalic by sonoSono: Neurologic: Alert, Oriented. Psychiatric: Cooperative, Appropriate mood & affect. Review / Management Results review Impression and Plan Diagnosis: IOL for PROMFHT: Category 1Hemorrhage Risk: [x] Low[] HighPlan:Admit to L&DConsents signedOB labsIV accessCervidil to be insertedConsider cytotec and/or pitocin after cervidilAncef 2gm IVPB q8h for GBS treatmentContinue to monitor maternal/fetal statusPt plans to unmedicated methods

for pain relief. Does not desire an epiduralReevaluate as neededAnticipate NSVD

Calculations for this Pregnancy:EnteredMethodMethod DateEDDEGA (At Entry)Type[---]Ultrasound[---][---]8 weeksNon-Authoritative[----]Ultrasound[----][---]12 weeks 3 daysNon-Authoritative. Is

Premature Rupture of Membranes. Informed consent obtained for anesthesia, procedure and blood transfusion. Gestational Age: * Note: EGA calculated as of [---]EDD: [---]EGA*: 37 weeks Type: Initial / FinalMethod Date: [---]Method: Last Menstrual Period ([---])Confirmation: ConfirmedDescription: Normal Amount/DurationComments: --Entered by: [---], [---] on [---] Other EDD

Patient: [---], [---] MRN: [---] FIN: [---] Age: 30 years Sex: Female DOB: [---] Associated Diagnoses: None Author: [---], [---], [---], Basic Information Reason for admission: PROM -

Examples

Attribute	Value	Sentence	
Gestational Age	37.1	G3P[] @ 37.1wks	
Sex of Fetus	Not mentioned	Information about the sex of the	fetus absent from the excerpt
Mother's Age (ye	31	Age: 31 years	
Liq. praecox	Not mentioned	Liq. praecox not mentioned	
Gravidity	3 (G3)	G3P[] @ 37.1wks	
Parity	[]	G3P[] @ 37.1wks	
Ruptured memb	Not mentioned	Ruptured membrane not mention	ned
Pyrexia/Severe I	Not mentioned	Pyrexia/Severe Fever not mention	oned
Meconium	Not mentioned	Meconium not mentioned	
Gestational hype	Not mentioned	Gestational hypertension not me	ntioned
Preeclampsia	Not mentioned	Preeclampsia not mentioned	
Lupus	Not mentioned	Lupus not mentioned	
Antiphospholipid	Not mentioned	Antiphospholipid Syndrome not r	mentioned
Asthma	Not mentioned	Asthma not mentioned	
Tobacco Usage	Never (less than	Never (less than 100 in I	
Oligohydramnios	Not mentioned	Oligohydramnios not mentioned	
Cholestasis	Not mentioned	Cholestasis not mentioned	
Chronic Kidney I	Not mentioned	Chronic Kidney Disease not mer	ntioned
IVF	Not mentioned	IVF not mentioned	
Pregestational D	Not mentioned	Pregestational Diabetes not men	tioned
Gestational Diab	Not mentioned	Gestational Diabetes not mention	ned

Age: * Note: EGA calculated as of [---|EDD: [---]EGA*: 37 weeks 1 day Type: AuthoritativeMethod Date: [---]Method: Unknown ([---])Confirmation: ConfirmedDescription: --Comments: --Entered by: [---] , [---] on [---] Other EDD Calculations for this Pregnancy: No additional EDD calculations have been recorded for this pregnancy. Is the patient admitted with spontaneous labor?: Yes. Gestational age 37wks to 38wks and 6 days, is this elective delivery?: No. Indication for delivery: Spontaneous Labor. Patient has a previous history of Cesarean Birth Will attempt a Trial of Labor G3P[---] @ 37.1wks by FTS for EDD [---] per patientPNC: Dr. Walker, [---]c/b: h/o C/S for fetal presentation in [---] (NSVD in [---]) History of Present Illness Pt presents feeling contractions every 15 mins since Monday. She has noticed a little bit of bright red spotting but denies heavy vaginal bleeding, LOF. +FM. She desires a TOLAC; her last deliveries were a vaginal delivery in [---] and a c/s in [---]. She denies fever, chills, headache, chest pain, SOB, nausea, vomiting, or dysuria. Health Status Allergies: Allergies (1) ActiveNo Known Medication. Type of reaction not documentedAllergie, Allergic Reactions (Selected)No Known Medication Allergies Current medications: No qualifying data available, Medications (1)

ActiveScheduled: (1)Lactated Ringers 250 mL 250 mL, Bolus IV, OneDoseUnschContinuous: (0)PRN: (0), (Selected) Inpatient MedicationsOrderedLactated Ringers Bolus: 250 mL, Bolus IV, Infusion Rate: 1,000 hr, OneDoseUnsch, First dose is STAT, [---], [---] mL/hr, Infuse over 0.3, for non reassuring fetal status, Category 2 or 3 fetal heart tracings or heavy vaginal bleeding Proble list: Active Problems (1)Pregnant ([---]), All ProblemsPregnant / SNOMED CT [---] / ConfirmedResolved: Well adult / SNOMED CT [---]Resolved: Pregnant / SNOMED CT [---]Resolved: Pregnant / SNOMED CT [---]Resolved: Pregnant / SNOMED CT [---] SNOMED CT [---] PMHx: nonePSHx: noneAll: noneSoc: denies x3Meds: none Review / Management OB Results Review Transcribed Prenatal Labs Transcribed Prenatal Blood Type: A Transcribed Prenata RH Type : Positive Transcribed Prenatal Antibody Screen : Negative Transcribed Prenatal RPR Status : Negative Transcribed Prenatal Hep B Surface Antigen : Negative Transcribed Prenatal HBsA Date: [---] Transcribed Prenatal GBS Status: Negative Transcribed Prenatal GBS Status Date: [---] Transcribed Prenatal HIV Status: Negative Transcribed Prenatal HIV Status Date: [---] Transcribed Prenatal Rubella Status: Immune Transcribed Prenatal Varicella Status: Immune Physical Examination No qualifying data available General: Alert and oriented. Respiratory: Respirations are non-labored. Gastrointestinal: Soft, Non-tender, Non-distended. SVE: 4/20/-3EFW: 7lbs [x][---] [] sonoSono: cephalic, posterior placentaEFM: 140 / mod var / no accels / no decels / q2-3min Histories Pregnancy History Pregnancy History G3 [---],0,0,2 Pregnancy # 1 Baby 10utcome Date: [---] Neonate Outcome: Live BirthOutcome or Result: C-SectionGender: --[---] Age: 40 weeks Wt: --Hospital: --[---] Labor: --Child's Name: --Baby's Father: --Pregnancy # 2 Baby 10utcome Date: [---] Neonate Outcome: Live BirthOutcome or Result: VaginalGender: --[---] Age: 40 weeks Wt: --Hospital: --[---] Labor: --Child's Name: --Baby's Father: -- Family History: No qualifying data available, No family history items have been selected or recorded. Prenatal History No Data Available Procedure history: No active procedure history items have been selected or recorded. Social History Social & Psychosocial HabitsTobacco[---] Use: Never (less than 100 in 1 Smokeless tobacco use: Never. Impression and Plan G3P[---] @ 37.1wks presenting in labor, desiring TOLAC s/p CSx1 and NSVD.1. Admit to L&D- Consents reviewed and signed in chart, all questions answered, pt expressed understanding- IV hydration, CLD, routine labs sent- Plan for expectant management- SVE every 3-4 hours or sooner for maternal/fetal indications2. FHT: category 1, continue to monitor3. Pain: pt declines epidural at this time 4. GBS: neg5. Rh+, rhogam not indicated6. Varicella immune, rubella immuned/w Dr. [---]

Patient: [---], [---] MRN: [---] FIN: [---] Age: 31 years Sex: Female DOB: [---] Associated Diagnoses: None Author: [---] MD, [---] Basic Information Reason for admission: Labor. Gestationa

Sample delivery note examples

Dischargesummarystandard, encounter id: 54300142

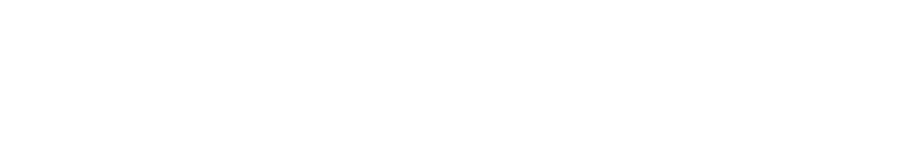
Attribute	Value	Sentence			
Gestational Age	Not mentioned	Information about ges	stational age a	bsent from exc	erpt.
Sex of Fetus	Not mentioned	Information about sex of fetus absent from excerpt.			
Mother's Age (ye	32	Age: 32 years			
Parity	G1P1	2 yo G1P1			
Ruptured memb Not mentioned		Information about ruptured membrane absent from excerpt.			
Fever	Not mentioned	Information about fever absent from excerpt.			
Meconium	Not mentioned	Information about meconium absent from excerpt.			
Gestational hype	Not mentioned	Information about gestational hypertension absent from excerpt			
Preeclampsia	Not mentioned	Information about preeclampsia absent from excerpt.			
Severe Preeclan Not mentioned		Information about severe preeclampsia absent from excerpt.			
Intraamniotic Inf Not mentioned		Information about inti	aamniotic infe	ction absent fro	m excerpt.

Obdischargesummary, encounter id: 56209236

Attribute	Value	Sentence					
Gestational Age	39	19 y/o G1P0 pr	9 y/o G1P0 presented on [] at 39.0 wks for IOL due to olig			due to oligo	
Sex of Fetus	Not mentioned	Information abo	nformation about sex of fetus absent from excerpt.				
Mother's Age (ye	19	19 y/o G1P0 pi	9 y/o G1P0 presented on [] at 39.0 wks for IOL due to oligo			due to oligo	
Parity	0	19 y/o G1P0 pi	9 y/o G1P0 presented on [] at 39.0 wks for IOL due to oligo				
Ruptured memb	Not mentioned	Information about ruptured membrane absent from excerpt.					
Fever	Not mentioned	Fever absent fi	Fever absent from excerpt.				
Meconium	Not mentioned	Meconium abs	Meconium absent from excerpt.				
Gestational hype	Not mentioned	Gestational hyp	pertension a	bsent f	rom exc	erpt.	
Preeclampsia	Not mentioned	Preeclampsia absent from excerpt.					
Severe Preeclan	Not mentioned	Severe Preecla	ampsia abse	nt from	excerpt		
Intraamniotic Infe	Not mentioned	Intraamniotic Ir	nfection abse	ent fror	n excerp	t.	

Obdischargesummaryam, Encounter id: 60818246

Gestational Age	35	25 y/o G6P[] presented on [] at [].5 wk with c/o ctx. Pl	NC: Dr. []>[],25 y/o G6P[] presented on [] at [].5	
Sex of Fetus	Not mentioned	nformation about sex of fetus absent from excerpt.		
Mother's Age (y	€ 25	25 y/o G6P[] presented on [] at [].5 wk with c/o ctx. Pl	NC: Dr. []>[]	
Parity	6	25 y/o G6P[] presented on [] at [].5 wk with c/o ctx. Pl	NC: Dr. []>[]	
Ruptured memb	Not mentioned	Information about Ruptured membrane absent from excerpt		
Fever	Not mentioned	Information about Fever absent from excerpt.		
Meconium	econium Not mentioned Information about Meconium absent from excerpt.			
Gestational hyp	€ Yes	Patient with PTL, decision made for repeat c/s with BTL. De	livered twin infants, uncomplicated. LST with Pfann, BTL pe	
Preeclampsia	Not mentioned	Information about Preeclampsia absent from excerpt.		
Severe Preecla	n Not mentioned	Information about Severe Preeclampsia absent from excerp	t.	
Intraamniotic In	Not mentioned	Information about Intraamniotic Infection absent from excerp	ot.	



Backup

Prompt

Given this list of attributes: [list of attributes], example format: [example format] and example note: [example note]. From the following note, for all attributes in the above attribute list return attribute and value along with sentence containing relevant attribute information in csv format: [note]

