



Team 111 - Birth control

More effective matching of birth control to minimize switching & side effects

Most women are dissatisfied with their birth control

- **54.3% of women** in U.S. are currently using contraception
 - nearly 90% of women have used contraception at some point in their lives
- **52%** not completely satisfied with their birth control due to side effects
 - most women switch 2.7 times
 - Side effects have a large impact on daily life: score 57/100

Typical Side Effects:



Serious side effects:

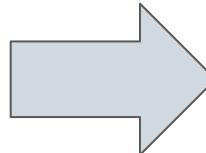
- Bone density loss
- Increased cervical & breast cancer risk
- Increased risk of stroke & blood clots

Better birth control matching can help solve this

Current standard of care:

U.S. Medical Eligibility Criteria
(USMEC):

Provides recommendations on which contraceptive methods are safe based on **medical history contraindications**



- Migraines with aura
- Hypertension
- Smoking
- Reproductive goals
- Previously given birth
- Age

Leaves room for personalization:

UTSouthwestern Medical Center. Find a Doctor. Conditions & Treatments. Locations. Academics. Search. New Patient.

Personalizing birth control to minimize health risks

July 25, 2022

adyn

Why we analyze hormones

A hormone is a chemical signal that your body uses to coordinate biological processes, such as metabolism or menstruation.

When it comes to highly effective methods of contraception, your circulating hormone levels and the way you metabolize synthetic hormones both play a role in how your body responds to hormonal birth control. Our scientists carefully study the hormones that govern aspects of your biology, specifically those that may be impacted by birth control.

Hormone levels from "textbooks". Hormone levels from three individuals. Estrogen. Progesterone.

Menstruation. Ovulation. Hormone level. 1, 14, 28.

YALE SCHOOL OF MEDICINE. MENU.

IN DEPTH

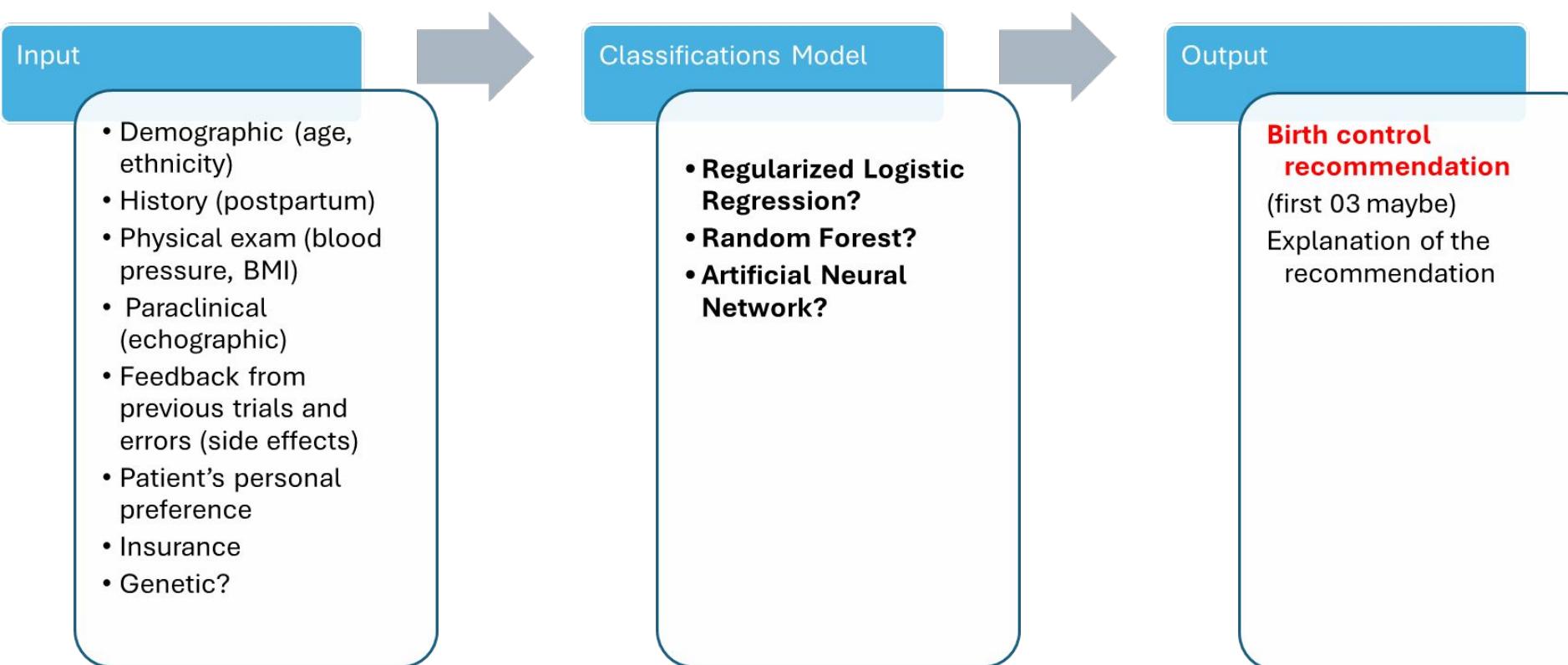
Analyzing Genetics May Lead to Better Contraceptive Experiences for Women

By Saul Asiel Flores. February 28, 2025.





Utilizing AI/ ML



A. Technical Feasibility

Data availability

- Data collection:
- Collect short digital questionnaires: side-effect scores and satisfaction of patient

A small app connects to the EHR for clinicians to use

Embedded ML model via **SMART-on-FHIR** app



Ethical aspect consideration (protect user privacy data)

The app sends only de-identified features to the model

- Remove name, address, MRN, phone number.

B. Model fitting success (Evaluation Measure)

1. Did the patient stay on it? Best Fit

If user keep using the birth control method for 6–12 months = good fit

If they stop or switch = poor fit

2. Side-effect score

Patients report how bad the side effects were (0–100).

Lower score = better fit indicate better satisfaction

Model

Deployment: if a patient stayed on their birth control or switched

3. Satisfaction rating

Higher rating = better fit.

Model fitting= how well the birth-control method works **for that specific patient user input**

C. How Clinicians Use the Model

- Review **3 recommended birth control methods** for this specific patient
- Displays **expected side effects** and **probability of switching**
 - Help clinicians understand Cause & Effect: “**Why**” explanation
- Clinician reviews options and decides what to prescribe
- Clinician can accept, modify, or ignore the suggestion



Business: The birth control market is large and growing

- Market Reach: **\$17.3B → \$26.6B** (2023-2035) Hormonal Contraceptives Market
- Addressable Market
 - 1.1B women need family planning
 - 164M with unmet needs
 - 874M using modern methods
- Our Target Initial
 - US market (90% usage rate) 45M women
- Revenue Generation Streams:
 - Electronic Health Record - Subscription -> Per Clinician Per Month
 - Hospital Systems -> License AI Model

Team 111 - Birth control:

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Competitive Analysis

Feature	Our Solution	Dama Health	Reya Health	PP Method Matcher
Matching	Advanced ML	Basic	Algorithm	Simple quiz
No Genetic Test		Required		
Real-time Side Effect Data	 Crowdsourced			
B2B Integration	API-first			Limited

Solution



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{  
  "patient_id": "anonymous_12345",  
  "demographics": {  
    "age": 28,  
    "bmi": 24.5,  
    "smoker": false  
  },  
  "medical_history": {  
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    "migraine_with_aura": false,  
    "blood_clots": false,  
    "diabetes": false,  
    "hypertension": false,  
    "depression": true  
  },  
  "current_medications": [  
    "sertraline 50mg (SSRI)"  
  ],  
  "contraceptive_history": [  
    {  
      "method": "combined_oral_pill",  
      "start_date": "2022-01",  
      "end_date": "2024-10",  
      "discontinuation_reason": "mood_changes",  
      "side_effects": ["irritability", "weight_gain"]  
    }  
  ],  
  "parity": 0,  
  "pregnancies": 0  
}
```

Your Birth Control Match Results

🥇 #1: Hormonal IUD (Mirena/Kyleena)

Match Score: 92%

★ Best for your priorities

Why it fits:

- Set for 5 years (high convenience)
- May stop periods
- No estrogen (safer for migraines)

Your risks:

- Mood changes: 15% (LOW)
- Weight gain: 20% (LOW)

[Learn More] [Talk to Provider]

#2: Implant - 85%

#3: Mini-Pill - 78%