The Hidden Costs of Digital Health Services: Research Annex

Methodology

CIS examined the network activity of several mobile and web applications during their regular use.

For this analysis, the apps and websites that were chosen are freely available and could be used and accessed with only an email address. For applications that required a phone number at a later stage (example, when an order is placed), the analysis is limited to the part of the app that does not require login with a phone number to comply with local laws. For this reason, most of the analysis was conducted on medical and health related websites and applications.

For web applications, the process of examining network activity is fairly straightforward: the requests and responses made over the Hypertext Transfer Protocol (HTTP) protocol while loading and navigating a website are made readily available by HTTP clients (such as web browsers like Chrome and Firefox).

For mobile applications, where HTTP clients are embedded in applications that are under the control of the application provider and not directly accessible, this process is slightly more involved. For this, CIS used Privacy International's data interception environment, which provides a preconfigured setup to conduct such analysis.

Once the interception of network activity was set up, CIS analysed each network interaction of the application individually, documenting the data being sent to entities that are classified as known trackers. CIS relied on Firefox's Tracking Protection functionality (powered by disconnect.me) to categorise entities as trackers for web applications, and used exodus for mobile applications.

Limitations

The methodology has the following limitations:

- **“Server to server” data transfers are not covered**: This methodology can only detect a subset of the data potentially shared with and between advertisers – data directly sent out from the user’s device by SDKs (software development kits) and tracking pixels embedded in the app or website. A report by The Markup suggests that following a crackdown on such data sharing by app stores, apps have moved to sharing data “behind the scenes” directly between web servers rather than from the user’s device.
- **Data obfuscation**: Some of the HTTP requests to known trackers were either encoded or encrypted in a format we were unable to decipher. This obfuscated text could potentially contain private information that this analysis could not detect.
- **Niche functionality** on apps and websites that end-users do not directly interact with is excluded from the analysis.

## Findings

### 1. Apollo Clinic

Apollo Clinic is an Indian private healthcare provider for consultation, diagnostics and health checks.

#### 1.1 Name and version of the App
Website: [https://www.apolloclinic.com](https://www.apolloclinic.com)
Date of analysis: January 2023

#### 1.2 Trackers
(Identified by Firefox)

<table>
<thead>
<tr>
<th>Tracker 1</th>
<th>Tracker 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://googleads.g.doubleclick.net">https://googleads.g.doubleclick.net</a></td>
<td><a href="https://www.clarity.ms">https://www.clarity.ms</a></td>
</tr>
<tr>
<td><a href="https://www.google-analytics.com">https://www.google-analytics.com</a></td>
<td><a href="https://snap.licdn.com">https://snap.licdn.com</a></td>
</tr>
<tr>
<td><a href="https://stats.g.doubleclick.net">https://stats.g.doubleclick.net</a></td>
<td><a href="https://px.ads.linkedin.com">https://px.ads.linkedin.com</a></td>
</tr>
<tr>
<td><a href="https://h.clarity.ms">https://h.clarity.ms</a></td>
<td><a href="https://www.facebook.com">https://www.facebook.com</a></td>
</tr>
<tr>
<td><a href="https://www.linkedin.com">https://www.linkedin.com</a></td>
<td><a href="https://c.clarity.ms">https://c.clarity.ms</a></td>
</tr>
</tbody>
</table>

#### 1.3 Permissions requested
- Location

#### 1.4 Data collection consent banner
No consent banner is displayed.

There is a privacy policy¹, but most pages (including the home page) do not link to it. The “Health Check Packages” page has a link to the policy.

#### 1.5 Main domain to where the data is sent
- https://www.apolloclinic.com

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¹ [https://www.apolloclinic.com/health-check-packages/privacy-policy-2/](https://www.apolloclinic.com/health-check-packages/privacy-policy-2/)
1.6 Domains to which advertising ID is sent.
N/A

1.7 Unexpected data sharing

*Feature: Health Check Packages*

The Health Check Packages page allows users to purchase health checkups. Packages are available for specific demographics (such as an over-40 package) and specific conditions (diabetes, heart conditions, etc.)

The page URL, which includes the **name of the health check** being viewed by a user is shared with the following third-parties:

- px.ads.linkedin.com
- google-analytics.com
- facebook.com

A **textual description** of the health check being viewed is shared with the following third-parties:

- google-analytics.com
- facebook.com

Additional **sale details**, such as the price, availability, currency, seller name and promotional image of the health check are sent to the following entities:

- facebook.com
On the checkout page, where the health check package is purchased, the page URL is shared with the following entities. This allows them to infer which health check was purchased:

- px.ads.linkedin.com
- google-analytics.com
- facebook.com

```
```

```
```

```
```

Request body for a request to facebook.com (irrelevant parts of the request body omitted for brevity):

```
-------------------------------901018798756236774290077869
Content-Disposition: form-data; name="cd[JSON-LD]"

```

Feature: **Find a Symptom**

The Find a Symptom page shows users a list of symptoms along with their descriptions.

**Symptoms**

- **Abdominal Pain**
  
  Having occasional mild to moderate abdominal pain is a common and normal occurrence. It is an uncomfortable experience that almost everyone experiences from time to time. But, for some people, this pain can become agonizing, due to its frequency and/or severity. Symptoms of abdominal pain may vary from person to person, however, some common symptoms may include: inability to pass stools, vomiting, tenderness in the abdomen, bloating, belching, indigestion, diarrhea, constipation, heartburn, pelvic discomfort, loss of appetite, painful or frequent urination, signs of dehydration and chest discomfort. Apart from these, if you experience blood in bowel movement, unintended weight loss, pale skin, swelling of the abdomen, persistent nausea or vomiting, vomiting blood, trouble breathing, along with severe pain in the abdomen, you must seek immediate medical care.

- **Acidity**
  
  Acidity is a term used for a set of symptoms caused by excess production of acid by the gastric glands of the stomach.

- **Acne**
  
  Acne is a common skin condition that causes spots, oily skin and sometimes skin that feels hot or sore/painful to touch.

- **Allergy**
  
  Allergies are a number of conditions caused by hypersensitivity of the immune system to something in the environment that usually causes little or no problem in most people. These diseases include hay fever, food allergies, atopic dermatitis, allergic asthma and anaphylaxis.

- **Ankle Pain**
  
  Ankle pain refers to any type of pain or discomfort in the ankles. This pain could be caused by an injury e.g. sprain or by a medical condition such as arthritis.

- **Anxiety**
  
  Anxiety is a general term for several disorders that cause nervousness, fear, apprehension and worry. These disorders affect how we feel and behave. They can at times manifest into real physical symptoms.

When a symptom is chosen, it shows a detailed description of the symptom and, in some cases, a list of doctors who can treat the condition.

The page URL, which includes the name of the selected symptom is shared with following entities:

- googleads.g.doubleclick.net
- google.com/pagead
- google-analytics.com
- px.ads.linkedin.com
- facebook.com

A short textual description of the selected symptom is shared with the following entities:

- googleads.g.doubleclick.net
- google.com/pagead
- google-analytics.com
- facebook.com
A long textual description related to the symptom are shared with the following entities:

- facebook.com

<table>
<thead>
<tr>
<th>URL</th>
<th>Description</th>
</tr>
</thead>
</table>

Request body for a request to facebook.com (irrelevant parts of the request body omitted for brevity):

https://www.apolloclinic.com/for-patients/find-a-symptom/chest-pain

-------------------------------144558032622701184211668835530
Chest pain: Causes, Symptoms, Treatment

Chest pain can either be a major issue or can be solved by few therapies. Visit the nearest Apollo Clinic before neglecting even the lightest chest pain as it can lead to major problems in future.

Feature: Find a Doctor

The Find a Doctor page allows the user to search for a doctor by name, location and speciality.
The page URL, which includes the name of the doctor selected, the doctor's speciality and the city the doctor serves is shared with the following entities:

- googleads.g.doubleclick.net
- google.com/pagead
- google-analytics.com
- px.ads.linkedin.com
- facebook.com


**Miscellaneous findings**

There were also several requests to Microsoft Clarity\(^2\) (`clarity.ms`) containing some undecipherable numbers.

Many requests to third parties also included referrer information, allowing them to infer how a user navigates between various pages within the website.

### 2. Healthify

Healthify is a weight loss application based in India.

#### 2.1 Name and version of the App

App: HealthifyMe – Calorie Counter  
Version: v19.1.1

\(^2\) [https://clarity.microsoft.com/](https://clarity.microsoft.com/)
2.2 Trackers

<table>
<thead>
<tr>
<th>AppsFlyer - analytics</th>
<th>Branch - analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>CleverTap - analytics, profiling, location</td>
<td>Facebook Analytics - analytics</td>
</tr>
<tr>
<td>Facebook Login - identification</td>
<td>Facebook Share</td>
</tr>
<tr>
<td>Google AdMob - advertisement</td>
<td>Google CrashLytics - crash reporting</td>
</tr>
<tr>
<td>Google Firebase Analytics - analytics</td>
<td>New Relic - analytics</td>
</tr>
<tr>
<td>Segment - analytics, profiling</td>
<td></td>
</tr>
</tbody>
</table>

Source: https://reports.exodus-privacy.eu.org/en/reports/323885/

2.3 Permissions requested

This app requests 36 permissions, including location, bluetooth, contacts and the ability to read files on the device storage.

Source: https://reports.exodus-privacy.eu.org/en/reports/323885/

2.4 Data collection consent banner

While signing up users are required to agree with the privacy policy.

2.5 Main domain to where the data is sent

- https://api.healthifyme.com

2.6 Domains to which advertising ID is sent.

- https://api2.branch.io/v1/install - Google advertising ID and hardware ID
- https://graph.facebook.com/ - Google advertising ID
- https://app-measurement.com - Google advertising ID

2.7 Unexpected data sharing

*Feature: User sign up*
During sign-up, private information and demographic information such as **email address**, **name**, **age**, **gender**, **weight** and **medical conditions** is shared with:

- eu1.clevertap-prod.com
- Zp81luk4-android.mobile-messenger.intercom.com

Additionally, the user’s **email address, name, age, gender and weight** is shared with this domain:

- app-measurement.com

https://api2.branch.io/v1/install

Request body (irrelevant parts omitted):

```json
{
  "advertising_ids": {
    "aaid": "0f275e04-7515-42fd-8d2b-7d41b66cddcf"
  },
  "app_version": "v19.1.1",
  "branch_key": "key_live_ffuh25xyXJ6eh377CMydYbhowwjbwjcF6",
  "brand": "Genymobile",
  "build": "vbox86p-userdebug 10 QQ1D.200105.002 475 test-keys",
  "cd": {
```
"mv": "-1",
"pn": "com.healthifyme.basic"
},
"connection_type": "wifi",
"country": "US",
"cpu_type": "i686",
"debug": false,
"device_carrier": "Android",
"environment": "FULL_APP",
"first_install_time": 1673246104862,
"google_advertising_id": "0f275e04-7515-42fd-8d2b-7d41b66cddcf",
"hardware_id": "ef0fb0d8186860b4",
"instrumentation": {
  "v1/install-qwt": "0"
},
}

https://graph.facebook.com/v13.0/513519302005425/activities

format: json
sdk: android
custom_events:
  [{"_eventName":"signup_success","_eventName_md5":"eb3358aa19eb9a54a991126ce24dda3","_logTime":1675230027,"_ui":"unknown","_inBackground":"1"}]
event: CUSTOM_APP_EVENTS
anon_id: XZ69ba07c4-2cfe-4621-bd2d-e6d8d681e7bd
application_tracking_enabled: true
advertiser_id_collection_enabled:true
advertiser_id: 0f275e04-7515-42fd-8d2b-7d41b66cddcf
advertiser_tracking_enabled: true
extinfo:
application_package_name: com.healthifyme.basic
https://app-measurement.com/a

Request body (irrelevant parts omitted):

app_vcode\x12\x03931\x12\x18\x89\x9f\xf6\xdb\xe0
\xbe\xa4\xf5\xba\xe0\x1a\x14\x08\x91\x96\xfe\xa9\xd0\x12\x04_fot
\x80\xdb\xd0\xaa\x9d\x01\x0e\x08\x91\x96\xfe\xa9\xd0\x12\x03_fi
\x01\x1a\x1c\x08\xcd\xee\xf6\xba\xe0\x12\x11Medical\_Condition\x1a\x00\x1a\x0f\x08\xbe\xae\xa8\xbc\xe0\x12\x04_sno
\x04\x1a\x13\x08\xbe\xae\xa8\xbc\xe0\x12\x04Sid
\xd7\xf0\x3e\x9e\x06\x1a\x1c\x08\xb5\x9d\xae\xbc\xe0\x12\x04Name\x1a
sensitiveName\x1a,\x08\xb6\x9d\xae\xbc\xe0\x12\x05Email\x1a\x1c_qf
ecpgpyxklpzhamc@tmmcv.com\x1a\x10\x08\xb7\x9d\x0e\xec\xe0\x12\x03Age\x1a\x0222\x1a\x12\x08\xb7\x9d\xae\xbc\xe0\x12\x06Gender\x1a\x01M\x1a\x15\x08\xb9\x9d\xae\xbc\xe0\x12\x06weight\x1a\x04\x12\x08\xbb\x9d\xae\xbc\xe0\x12\x03BMI\x1a\x0427.7\x1a\%\x08\xbb\x9d\xae\xbc\xe0\x12\x11LifeStyle\x1a\x11Moderately
Active\x1a$\x08\xbb\x9d\xae\xbc\xe0\x12\x0fMeal\_Preference\x1a
Vegetarian\x1a"\x08\xbb\x9d\xae\xbc\xe0\x12\x0cPrimary\_Goal\x1a\x0blose_weight\x1a$\x08\xbb\x9d\xae\xbc\xe0\x12\x14Notification\_Bloc
ked\x1a\x05false\x1a9\x08\xde\xce\xae\xbc\xe0\x12\x0cct_object_id\x1a"
__57a3208d392642bfa5043a6ad1cf9d9\x1a\x1e\x08\xdf\xce\xae\xbc\xe0\x12\x10


Request body (irrelevant parts omitted):

[  
    "profile": {  
        "Age": 27,  
        "BMI": 23.5,  
        "Battery\_Opt\_Disabled": false,  
        "Carrier": "Android",  
        "Email": "jgydqhbqjmqswprrcx@tmmcv.net",  
        "Gender": "M",  
    }  
]
"Identity": 35898506,
"LifeStyle": "Moderately Active",
"Meal_Preference": "Vegetarian",
"Medical_Condition": "diabetes, pre-diabetes, cholesterol, hypertension, pcos, hypothyroid, physical_injury",
"Name": "sensitiveName",
"Notification_Blocked": false,
"Play Version": 224915031,
"Primary_Goal": "lose_weight",
"cc": "us",
"sku_country_code": "INR",
"tz": "America/New_York",
"weight": 76,
"s": 1675229791,
"type": "profile"
}

https://zp81luk4-android.mobile-messenger.intercom.com/messenger/mobile/users

Request body (irrelevant parts omitted):
{
  "user": {
    "email": "jgydqhbqjmqswprrcx@tmmcv.net",
    "intercom_id": "63d9fb4d1cb2b04c9ff1c5d3",
    "type": "user",
    "user_id": "35898506"
  },
  "user_attributes": {
    "custom_attributes": {
      "Notification_Blocked": false,
      "age": "27",
      "bmi": 24,
      "corporate_id": -1,
      "gender": "male",
      "goals": "lose_weight",
      "iAge": 27,
"medical_conditions": "diabetes, pre-diabetes, cholesterol, hypertension, pcos, hypothyroid, physical_injury",
"name": "sensitiveName",
"plan": "FREE",
"profile_url": "https://api.healthifyme.com/user/info/?username=jgydqhbjmqswprrcx@tmmcv.net",
"source_name": "playstore",
"source_type": "b2c",
"user_ethnicity": "",
"weight": 78.0
},
"email": "jgydqhbjmqswprrcx@tmmcv.net",
"user_id": "35898506"
}

https://graph.facebook.com/v13.0/513519302005425/activities

format: json
sdk: android
custom_events:
[{"_eventName":"activity_track_new","_eventName_md5":"5293b30d50c6d3d0357667480243f05b","_logTime":1675235880,"_ui":"unknown","_session_id":"55297350-f3a3-4239-b67b-99b30ed92070"},{"_eventName":"obj_completed","_eventName_md5":"fe518b900ec0de352dbb5c6f5d6a6093","_logTime":1675235881,"_ui":"unknown","_session_id":"55297350-f3a3-4239-b67b-99b30ed92070"}]

event: CUSTOM_APP_EVENTS
anon_id: XZ69ba07c4-2cfe-4621-bd2d-e6d8d681e7bd
application_tracking_enabled: true
advertiser_id_collection_enabled:true
advertiser_id: 0f275e04-7515-42fd-8d2b-7d41b66cddcf
advertiser_tracking_enabled: true
extinfo:
application_package_name: com.healthifyme.basic
Miscellaneous findings

3. MaxLab
Max Lab is the Lab testing arm of Max Hospitals and conducts lab tests. The website allows users to book labs and tests, order the collection of a sample from the user's home and download reports once they're available.

3.1 Name and version of the App
Website: maxlab.co.in
Date of analysis: February 2023
3.2 Trackers
(Identified by Firefox)

- https://www.google-analytics.com
- https://googleads.g.doubleclick.net/
- https://connect.facebook.net
- https://facebook.com

Not identified by firefox but seen in the console

- https://wzrkt.com

3.3 Permissions requested
Location requested

3.4 Data collection consent banner
No consent banner displayed. The site footer includes a privacy policy.

3.5 Main domain to where the data is shared

- https://www.maxlab.co.in/
- https://maxcdn.bootstrapcdn.com/
- https://maxlab-web.s3.ap-south-1.amazonaws.com/

3.6 Domains to which advertising ID is sent.
N/A

3.7 Unexpected data sharing

Feature: Home Page

The following trackers get page URL which includes the user’s location i.e. city of access.

- https://googleads.g.doubleclick.net
- https://www.google.com/pagead/
- https://www.google.co.in/pagead/

```
GEThttps://googleads.g.doubleclick.net/pagead/viewthroughconversion/329227548/?random=1675928848718&cv=11&fst=1675928848718&bg=ffffff&guid=ON&async=1&gtml=45be3280&u_w=1440&u_h=900&hn=https://www.googleadservices.com&frm=0&url=https://www.maxlab.co.in/delhi&ref=https://www.maxlab.co.in/&tiba=Book Lab Test in Delhi - Test Price, Sample
```

3 https://www.maxlab.co.in/privacy-policy
Feature: **Wellwise senior citizen female**

This is a group of services packed in a bundle and includes a collection of lab based tests that can be conducted for senior citizens as part of a comprehensive health check.

The page URL includes location of test (city) and name of the service selected. The name of the service may include sensitive information, for example “wellwise senior citizen female” which identifies the gender, age range and lab tests selected. The following entities get the page URL and service information:

- [https://googleads.g.doubleclick.net/](https://googleads.g.doubleclick.net/)
- [https://www.google.com/](https://www.google.com/)
- [https://www.google.co.in](https://www.google.co.in)
- [https://www.google-analytics.com](https://www.google-analytics.com)
- [https://www.facebook.com/](https://www.facebook.com/)
**Feature: Full Body Check Up tab**

The “Full Body Check Up” tab provides information about the services and packages that the platform offers their users.

Following entities get the current URL, keep track of which url the user has come from and the current page title. Page urls include service name and package name selected which may be sensitive information including **gender**, **age**, and **medical condition**.

- [https://googleads.g.doubleclick.net](https://googleads.g.doubleclick.net)
- [https://www.google-analytics.com](https://www.google-analytics.com)
- [https://www.google.co.in/](https://www.google.co.in/)
- [https://www.google.com/](https://www.google.com/)

The following entity gets previous and current URLs, but no page title.
- [https://www.facebook.com/](https://www.facebook.com/)
Feature: Blog

Page URL and page title include sensitive information about the medical condition the user is browsing (for example; 'kidney functions').

- https://googleads.g.doubleclick.net
- https://www.google.co.in/pagead/
- https://www.google.com/

The following entities get the current URL and title
- https://www.google-analytics.com/
Kidney Test

**Top 5 Diseases That Can be Detected with a Simple Urine Test**

The elimination of waste products, toxins, and excessive water from the body through urination is important for a range of bodily functions. Urine is produced in the kidneys and stored in the bladder.

**Home Remedies for Urinary Tract Infection**

A urinary tract infection (UTI) is an infection in any part of the urinary system, the kidneys, bladder or urethra. Symptoms of a UTI include frequent and painful need to urinate, increased urge to

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**Miscellaneous findings**

Following trackers get the current URL and keeps track of which url the user has come from in addition to the current page title:

- [https://googleads.g.doubleclick.net](https://googleads.g.doubleclick.net)
- [https://www.google-analytics.com](https://www.google-analytics.com)

---
This referrer information allows them to infer how a user navigates between various pages within the website. Data leak is further compounded by the way MaxLab codes its URLs which leaves a lot of information visible. Name of services, age, gender, medical conditions, and user location have all found their way into the URL string throughout different pages of the website.

For most features analysed, information is sent to https://wzrkt.com/ as well but the message is obfuscated, thus it is hard to identify what is being sent.
4. Netmeds

Netmeds is an e-pharmacy app that delivers medication, lifestyle and beauty products to the user. They also offer lab tests with samples collected from the user’s home.

4.1 Name and version of the App
Website: netmeds.com
Date of analysis: February 2023

4.2 Trackers
(identified by firefox)

<table>
<thead>
<tr>
<th><a href="http://www.google-analytics.com">www.google-analytics.com</a></th>
<th><a href="https://connect.facebook.net">https://connect.facebook.net</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://googleads.g.doubleclick.net">https://googleads.g.doubleclick.net</a></td>
<td><a href="https://www.facebook.com">https://www.facebook.com</a></td>
</tr>
<tr>
<td><a href="https://static.criteo.net">https://static.criteo.net</a></td>
<td><a href="https://stats.g.doubleclick.net">https://stats.g.doubleclick.net</a></td>
</tr>
</tbody>
</table>

Doesn’t show up the firefox list but present in the developer console
- https://bat.bing.com

4.3 Permissions requested
None requested

4.4 Data collection consent banner
Consent banner present at the bottom of the screen.

4.5 Main domain to where the data is shared
www.netmeds.com

4.6 Domains to which advertising ID is sent.
N.A.
4.7 Unexpected data sharing

**Feature: select a medication**

This can be done in multiple ways. Clicking on the Medicine tab in the menu, then on all medicine, which brings up the list of conditions for which the website has stock (medicine -> all medicine -> anxiety)

The web app allows the user to select a medicine using the medical condition that they’re treating.
The following entities receive the page URL which includes the name of the medical condition for which the user is looking for medicine. Example -> ‘https://www.netmeds.com/prescriptions/anxiety’.

- https://googleads.g.doubleclick.net/
- https://bat.bing.com
- https://www.google.com/pagead/
- https://www.google.co.in/pagead/
- https://www.facebook.com/
- https://www.google-analytics.com
- https://sslwidget.criteo.com/

The following entities also receive the page title, which includes the name of the medical condition.

- https://googleads.g.doubleclick.net/
- https://bat.bing.com
- https://www.google.com/pagead/
- https://www.google.co.in/pagead/
- https://www.google-analytics.com

```

GEThttps://bat.bing.com/action/0?ti=26076008&tm=gtm002&Ver=2&mid=c625c5f2-ab00-4f0d-ab0c-4c24c44c7f40&sid=c6a5ee50a90a11edbf7a135da5cfe3e5&vid=c6a61b80a90a11eda5f87d81f0213e26&vids=0&msclkid=N&pi=918639831&lg=en-US&sw=1440&sh=900&sc=30&tl=Anxiety - Search & Shop Prescription Medicines Online at Netmeds.com.&kw=Online Pharmacy India, Medicine Online, Medicine Store, Online Medical Store, Purchase Medicine Online, Prescription Medicines, Prescription Drugs, Anxiety&p=https://www.netmeds.com/prescriptions/anxiety&r=&lt=1770&evt=pageLoad&sv=1&rn=71221

GEThttps://www.google.com/pagead/1p-user-list/878044376/?random=1676021781715&cv=11&fst=1676019600000&bg=ffffff&guid=ON&async=1&gmp=45be3280&u_w=1440&u_h=900&frm=0&url=https:/
```
Feature: Medicine Order Page

Once a drug is identified from the list of results, the user is navigated to its own page which includes some information about the drug and the image of the packaging.
The following trackers get the URL and title of the page which includes the **name of the drug** even **before** “Add to Cart” is selected:

- [https://www.google-analytics.com](https://www.google-analytics.com)
- [https://bat.bing.com/](https://bat.bing.com/)
- [https://googleads.g.doubleclick.net/](https://googleads.g.doubleclick.net/)
- [https://www.google.com/](https://www.google.com/)
- [https://www.google.co.in/](https://www.google.co.in/)

The following gets the page URL which includes the name of the drug even **before** “Add to Cart” is selected:

- [https://www.facebook.com](https://www.facebook.com)

In addition to the name of the drug, the name of the medical condition is sent to:

- [https://bat.bing.com/](https://bat.bing.com/)
Clicking add to cart increases the amount of information sent to the trackers:

The Page URL, which includes the name of the drug, is sent to:
- [https://sslwidget.criteo.com/](https://sslwidget.criteo.com/)
The page URL (including the medicine name) and the intent to purchase (a click event) is sent to

- https://www.google.com/
- https://www.facebook.com
- https://googleads.g.doubleclick.net/
- https://analytics.google.com
- https://www.google.co.in

In addition to the above, the following get the cost and quantity of drug added to cart, and the medical condition for the drug

- https://www.facebook.com
- https://analytics.google.com

analytics.google.com also gets the city selected by the user at first navigation to the website.

```
GEThttps://www.google.com/pagead/1p-conversion/878044376/?random=1676025658588&cv=11&fst=1676025658588&bg=ffffff&guid=0N&async=1&gtm=45He3280&u_w=1440&u_h=900&label=xfZHC-P-H5s0DENj16ID&hn=www.google.com&frm=0&url=https://www.netmeds.com/prescriptions/obsikon-cr-12-5-tablet-10s&tiba=OBSIKON CR 12.5 Tablet 10's - Buy Medicines online at Best Price from Netmeds.com&value=0&bttype=purchase&auid=170188024.1676009926&gcp=1&sscte=1&ct_cookie_present=1&rfmt=3&fmt=4


GEThttps://googleads.g.doubleclick.net/pagead/viewthroughconversion/878044376/?random=1676025658588&cv=11&fst=1676025658588&fmt=3&bg=ffffff&guid=0N&async=1&gtm=45He3280&u_w=1440&u_h=900&label=xfZHC-P-H5s0DENj16ID&hn=www.google.com&frm=0&url=https://www.netmeds.com/prescriptions/obsikon-cr-12-5-tablet-10s&tiba=OBSIKON CR 12.5 Tablet 10's - Buy Medicines online at Best Price from Netmeds.com&value=0&bttype=purchase&auid=170188024.1676009926&gcp=1&ct_cookie_present=1
```
5. Maya

5.1 Name and version of the App
App: Maya : Period tracker for Women
Date of analysis: April 2023

5.2 Trackers

<table>
<thead>
<tr>
<th>Google AdMob: advertisement</th>
<th>Facebook Ads: advertisement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google Analytics: analytics</td>
<td>Facebook Analytics: analytics</td>
</tr>
<tr>
<td>Google CrashLytics: crash reporting</td>
<td>Facebook login: identification</td>
</tr>
<tr>
<td>Google Firebase Analytics: analytics</td>
<td>Facebook Share</td>
</tr>
<tr>
<td>Google Tag Manager: analytics</td>
<td></td>
</tr>
</tbody>
</table>

5.3 Permissions requested
This app requests 21 permissions, including approximate location, camera access, the ability to read contacts and update the device storage

Source: https://reports.exodus-privacy.eu.org/en/reports/in.plackal.lovecyclesfree/latest/

5.4 Data collection consent banner
A banner is not presented, but a link to privacy policy is present at sign up

5.5 Main domain to where the data is sent
- App.maya.live

5.6 Domains to which advertising ID is sent.
Not available

5.7 Unexpected data sharing
Maya is a period tracking app and has been the subject of PI investigations in the past.

At launching the app, the following trackers are initialised and collect the login event:

- graph.facebook.com
- firebaselogging-pa.googleapis.com
- ssl.google-analytics.com

The following get all analytics for any page that is visited and any data that is added to the app:

- firebaselogging-pa.googleapis.com
- ssl.google-analytics.com

While the specifics of the symptoms, notes or medication etc are not recorded, the fact that a user has added a symptom, mood, or birth control are all events that are recorded by the mentioned trackers. The app also has a section for users to record when they last had sex and whether it was protected or unprotected. While this feature is not mandatory, its use by the user is picked up by the above analytics.

```json
{
"supports_implicit_sdk_logging":true,"gdpv4_nux_enabled":false,"android_sdk_error_categories":[]
}
```
"code":102
},
{
"code":190
},
"recovery_message":"Please log into this app again to reconnect your Facebook account."
},
"app_events_session_timeout":60,"app_events_feature_bitmask":65559,"seamless_login":1,"smart_login_bookmark_icon_url":"https://\ static.xx.fbcdn.net\/rsr p.php\/v3\/y6\/r/yJMNj6y6FT-.png","smart_login_menu_icon_url":"https://\ static.xx.fbcdn.net\/rsrc.php\/v3\/yT1\/r\/KNd968Wj-b.png","aam_rules":"{}","suggested_events_setting":{"production_events":[]},"eligible_for_prediction_events":{"fb_mobile_add_to_cart","fb_mobile_purchase","fb_mobile_initiated_checkout"}},{"id":"279652068750718"}

{"logRequest": [
{
"clientInfo": {
"androidClientInfo": {
"applicationBuild": "202",
"country": "US",
"device": "vbox86p",
"fingerprint": "google/vbox86p/vbox86p:11/RQ1A.210105.003/590:userdebug/test-keys,patch-1",
"hardware": "vbox86",
"locale": "en",
"manufacturer": "Genymobile",
"mccMnc": "310270",
"model": "Galaxy S8",
"osBuild": "RQ1A.210105.003",
"product": "vbox86p",
"sdkVersion": 30
},
"clientType": "ANDROID_FIREBASE"
},
"logEvent": [
{
"eventTimeMs": 1682320896020,
"eventUptimeMs": 5452020,

"networkConnectionInfo": {
"mobileSubtype": "UNKNOWN_MOBILE_SUBTYPE",
"networkType": "WIFI"
},

"sourceExtension": "Cg4Ih/5JkfswEJPjpH7MBolCqkzMADEICagAUiGWLULuN6sYWNtYWwubG92ZW55Y2x1c2ZyZWU="
},
"timezoneOffsetSeconds": 19800
}
Source extension is encoded in base 64
6. Practo
Practo is an online healthcare provider based in India that allows users to book video consultations, order medicines, book doctor appointments and lab tests, and find doctors.

6.1 Name and version of the App
Website: Practo (https://www.practo.com/)
Date of analysis: February 2023

6.2 Trackers
(Identified by Firefox)

<table>
<thead>
<tr>
<th>Tracker URL</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://connect.facebook.net">https://connect.facebook.net</a></td>
</tr>
<tr>
<td><a href="https://adservice.google.com">https://adservice.google.com</a></td>
</tr>
<tr>
<td><a href="https://www.google-analytics.com">https://www.google-analytics.com</a></td>
</tr>
<tr>
<td><a href="https://stats.g.doubleclick.net">https://stats.g.doubleclick.net</a></td>
</tr>
<tr>
<td><a href="https://9535906.fls.doubleclick.net">https://9535906.fls.doubleclick.net</a></td>
</tr>
<tr>
<td><a href="https://www.facebook.com">https://www.facebook.com</a></td>
</tr>
</tbody>
</table>

6.3 Permissions requested
Location (requested by some pages)

6.4 Data collection consent banner
A banner is not presented, but a link to privacy policy⁴ is present in the page footer.

6.5 Main domain to where the data is sent
- practo.com

6.6 Domains to which advertising ID is sent.
N/A

6.7 Unexpected data sharing
*Feature: Practo Health Wiki*

Explains various health conditions and procedures.

⁴ https://www.practo.com/company/privacy
The page URL and title, which includes the name of the health condition selected by a user, is shared with the following entities:

- google-analytics.com
- googleads.g.doubleclick.net
- google.com/pagead/
- google.co.in/pagead/

Additionally, the medical speciality corresponding to the chosen health condition (for example, if a patient selects kidney disease so the corresponding specialty would be nephrology) is shared with the following:

- 9535906.fls.doubleclick.net
- google-analytics.com
- adservice.google.com

<table>
<thead>
<tr>
<th>treatment/43/article&amp;ul=en-us&amp;de=UTF-8&amp;dt=Arthritis: Symptoms and Treatment&amp;sd=30-bit&amp;sr=1680x1050&amp;vp=1386x543&amp;je=0&amp;_u=AACAAEABAAAAAACAII~&amp;jid=&amp;gjid=&amp;cid=1055410137.1675748022&amp;tid=UA-18841050-11&amp;_gid=360759549.1675748022&amp;_slc=1&amp;z=1570985833</th>
</tr>
</thead>
</table>


https://9535906.fls.doubleclick.net/activity1;src=9535906;type=remark0;cat=global0;ord=1;num=7575166485598;gtm=45fe3210;auiddc=1725535375.1675748007;~of=htps%3A%2F%2Fwww.practo.com%2Fsapphire-widgets%2FCarousel%2FPrime-providers%3FSubspeciality%3DRheumatologist%26utm_source%3DHealth-wiki |


Feature: **Find a doctor**

This page helps users find a doctor for a chosen medical specialisation near their location.

The **chosen medical speciality** and **exact GPS location of the user** is shared with the following entities:

- google-analytics.com
- facebook.com
When the user attempts to book an appointment with the doctor, the **Doctor's last name**, **medical specialisation, appointment time and appointment cost** is shared with the following:

- googleads.g.doubleclick.net
- google-analytics.com
- google.com/pagead
- google.co.in/pagead
- facebook.com

---

**URL:** https://adservice.google.com/ddm/ HLS/z/src=9535906; type=event0; cavity=marke0; ord=1; num=4167557842278; gtm=45fe3210; auiddc=*_; oref=https%3A%2F%2Fwww.practo.com%2Fsapphire-widgets%2Fcarousel%2Fprime-providers%3Fsubspeciality%3DRheumatologist%26utm_source%3Dhealth-wiki

**Request Body (truncated for brevity):**

https://www.practo.com/search/doctors?results_type=doctor&q=%5B%78 %22word%22%3A%22Dermatologist%22%2C%22autocompleted%22%3Atrue%2C%22category%22%3A%22subspeciality%22%7D%5D&latitude=12.98077577315783&longitude=77.63935893265563&location_type=geo%20location&city=Bangalore&ul=en-us&de=UTF-8&dt=Best Dermatologists In J.c Nagar, Bangalore - Instant Appointment Booking, View Fees, Feedbacks | Practo&sd=30-bit&sr=1680x1050&vp=1386x386&je=0&_u=SCCAAEIJAAAAACAMI~&jid=243505593&gjid=1554454516&cid=1055410137.1675748022&tid=UA-18841050-11&_gid=360759549.1675748022&_r=1&_s1c=1&z=1544248071

```
URL: https://www.facebook.com/tr/
```

```
Request Body (truncated for brevity):
```

https://www.practo.com/search/doctors?results_type=doctor&q=%5B%78 %22word%22%3A%22Dermatologist%22%2C%22autocompleted%22%3Atrue%2C%22category%22%3A%22subspeciality%22%7D%5D&latitude=12.98077577315783&longitude=77.63935893265563&location_type=geo%20location&city=Bangalore

```
Content-Disposition: form-data; name="rl"
```

```
```
https://googleads.g.doubleclick.net/pagead/viewthroughconversion/942004674/?random=1675768765878&cv=11&fst=1675768765878&bg=ffffff&guid=ON&async=1&gtime=3210&u_w=1680&u_h=1050&hn=www.googleadservices.com&frm=0&url=https://www.practo.com/appointment/madan-2-hair-transplant-surgeon/561807/book?type=abs&doctor_id=561807&specialization=Dermatologist&appointment_time=2023-02-08%2008:00&appointment_token=NTYxODA3UHJhY3RpY2VEb2N0b3I%3D&prepaid=true&amount=750&discount=0&discount_type=PERCENTAGE&cancellation_fee=50&prepaid_type=payment_optional&cancellation_charge=50&cancellation_fee_type=ABSOLUTE&plus_discount=0&total_amount_to_pay=750&disclaimers%5B0%5D%5Btext%5D=Free%20cancellation%20and%20rescheduling%20is%20available%20till%20hours%20before%20the%20appointment%20time.&disclaimers%5B1%5D%5Btext%5D=After%20the%20stipulated%20time%2C%20rescheduling%20is%20available%20till%20hours%20before%20the%20appointment%20time.

https://www.google-analytics.com/j/collect?v=1&_v=j99&a=994227509&t=pageview&_s=1&dl=https://www.practo.com/appointment/madan-2-hair-transplant-surgeon/561807/book?type=abs&doctor_id=561807&specialization=Dermatologist&appointment_time=2023-02-08%2008:00&appointment_token=NTYxODA3UHJhY3RpY2VEb2N0b3I%3D&prepaid=true&amount=750&discount=0&discount_type=PERCENTAGE&cancellation_fee=50&prepaid_type=payment_optional&cancellation_charge=50&cancellation_fee_type=ABSOLUTE&plus_discount=0&total_amount_to_pay=750&disclaimers%5B0%5D%5Btext%5D=Free%20cancellation%20and%20rescheduling%20is%20available%20till%20hours%20before%20the%20appointment%20time.&disclaimers%5B1%5D%5Btext%5D=After%20the%20stipulated%20time%2C%20rescheduling%20is%20available%20till%20hours%20before%20the%20appointment%20time.
will not be available, and a fee of 50 INR will be applicable for cancellations or no shows. If you wish to cancel or reschedule, you can do it up to 2 hours before the appointment time. You will be charged Rs 50 cancellation fee if you cancel within 2 hours of your appointment time or absent. However, in the event of doctor no show, you will not be charged a cancellation fee. However, in the event of doctor no show, you will not be charged a cancellation fee. You will be charged Rs 50 cancellation fee if you cancel within 2 hours of your appointment time or absent. However, in the event of doctor no show, you will not be charged a cancellation fee.
Feature: Medicines

This page allows users to find medications and purchase them.

The name of the medication that a user selects is shared with the following:

- practo.my.salesforce.com
- google-analytics.com
- securepubads.g.doubleclick.net


https://securepubads.g.doubleclick.net/gampad/ads?pvsid=889489836409581&correlator=2615030956327935&adsid=ChAIgIqInwYQ8Imc1q2k1pQbEi8ArTu-E_iUbUGdX8xc8dvqqsbJLdfWAGPZ0PiUKkb0xZihfI03xGSIx5iO0kgWw&jar=2023-02-07-06&eid=31072029,31071662&output=ldjh&gdfp_req=1&vrg=2023020201&ptt=1&impl=fifs&iu_parts=21830643467,UTM_728x90_Practopedia&enc_prev_ius=/0/1&prev_iu_szs=728x90&ifi=1&adks=4233900796&sfv=1-0-40&cust_params=practo_property=practopedia&sc=1&cookie=ID=09fa582610bf901a:T=1675752172:S=ALNI_MbEA2Tq_DZG57G8fIy05C88H5eVA&gpic=UID=00000bb767cbe4dc:T=1675752172:RT=1675752172:S=ALNI_MaDc_9uboaNKq0HCPd2bT5Hw63tSg&abxe=1&dt=1675770583249&lmt=1675770583&dt=1675770583&adxs=575&adys=423&biw=1386&bih=440&scr_x=0&scr_y=0&btvi=0&ucis=1&oid=2&color_bg=#FFFFFF&color_border=#000000&u_his=1&u_h=1050&u_w=1680&u_ah=1025&u_aw=1680&u_cd=30&u_sd=2&u_tz=330&bc=31&nvt=2&url=https://www.practo.com/health-products/my-dr-pain-relief-oil-8440/p&ref=https://www.practo.com/health-products/pain-relief/1&frm=20&vis=1&psz=688x110&msz=688x0&fws=0&ohw=0&ga_vid=1055410137.1675748022&ga_sid=1675770583&ga_hid=844208891&ga_fc=true

Feature: Book a test
Allows the user to book medical diagnostic tests.

The name of the chosen diagnostic test is shared with the following third-parties:

- google-analytics.com
- facebook.com
- googleads.g.doubleclick.net
- google.com/pagead
- google.co.in/pagead

When the user attempts to book a test, their name and phone number is shared with the following:

- google-analytics.com

<table>
<thead>
<tr>
<th>5568883defcc6823b6c9e3f&amp;v=2.9.95&amp;r=stable&amp;ec=1&amp;o=2078&amp;fbp=fb.1.1675832122540.1725160604&amp;it=1675832143160&amp;coo=false&amp;tm=1&amp;rqm=GET</th>
</tr>
</thead>
</table>
Other researched apps

In addition to those we reported on, our partners at CIS also investigated the following apps and websites, their findings are below:

7. MediBuddy

Medibuddy is a health app that allows users to book consultations with doctors, order medications, and book lab tests.

This is an analysis for the non-password protected features of the website because the mobile app requires logging in with a phone number to access features.

There is an existing Exodus report for the mobile app: https://reports.exodus-privacy.eu.org/en/reports/in.medibuddy/latest/

7.1 Name and version of the App
Website: https://www.medibuddy.in/
Date of analysis: February 2023

7.2 Trackers
(Identified by Firefox)

- https://js-agent.newrelic.com
- https://bam.eu01.nr-data.net
- https://www.google-analytics.com
- https://cdn.branch.io
- https://connect.facebook.net
- https://static.hotjar.com
- https://adservice.google.com
- https://googleads.g.doubleclick.net
- https://script.hotjar.com
- https://api2.branch.io
- https://vars.hotjar.com
- https://www.facebook.com
- https://stats.g.doubleclick.net

7.3 Permissions requested
- Location data - pincode
7.4 Data collection consent banner
No consent banner was presented. There is a privacy policy\(^5\) linked in the footer of all webpages surveyed.

7.5 Main domain to where the data is shared
https://www.medibuddy.in/

7.6 Domains to which advertising ID is sent.
N/A

7.7 Unexpected data sharing

*Feature: Book Health Check banner*

The landing page has banners that promote services from different parts of the website and provides discounts. Clicking on the banner for “Book a Health Check” identifies which banner has been clicked and sends this information to Google Analytics.

\(^5\) https://www.medibuddy.in/privacy-policy
Feature: Medicine Finder
This feature of the website allows users to search for a medical condition to select a medicine or, if already known, search for a specific drug for home delivery.

The URL which includes user location (either as a pin code or as the city selected) and user behaviour i.e., user’s search history comprising the medicine or pharmacy related information that the user is seeking is transferred to the following entities:

- www.facebook.com
- Googleads.g.doubleclick.net
Feature: **Lab Tests and Packages; Vaccination**

The web app allows users to book a lab based testing service for which the sample is collected from the user’s home. And, the Vaccination page allows users to book a vaccination.

The following entities get the URL when these pages are visited. The url contains service information which can be used to infer user browsing behaviour (example: medibuddy.in/vaccinationLanding):

- Bam.eu01.nr-data.net
- Q.quora.com
- Googleads.g.doubleclick.net
- Facebook.com
Miscellaneous findings:

- For all features analysed, information is also sent to https://wzrkt.com/, however, the message is obfuscated, thus it is hard to identify what is being sent. See Appendix D for a sample request.

- There is also an ID in the attributes for facebook.com that is the same for the user across all the pages on the website (attribute fbp) which might be used to identify browsing behaviour across the domain.

8. Pharmeasy

8.1 Name and version of the App
Website: pharmeasy.in/
Date of analysis: February 2023

8.2 Trackers
(identified by Firefox)

- https://adservice.google.com
- https://www.google-analytics.com
- https://login-ds.dotomi.com
- https://stats.g.doubleclick.net
- https://tags.bluekai.com
- https://us-u.openx.net
- https://simage2.pubmatic.com
- https://login.dotomi.com
- https://connect.facebook.net
- https://www.facebook.com

8.3 Permissions requested
None

8.4 Data collection consent banner
None. There is a link to a privacy policy on the footer of every page.

8.5 Main domain to where the data is sent
- https://pharmeasy.in
- https://assets.pharmeasy.in

8.6 Domains to which advertising ID is sent.
N/A

8.7 Unexpected data sharing

Feature: Buy medicine
This page allows users to search for and purchase medications. The **search term** (example: paracetamol) and **chosen medication** (example: Dolo 650) are shared with the following entities:

- analytics.google.com
- googleads.g.doubleclick.net
- google.com/pagead
- google.co.in/pagead
- login-ds.dotomi.com
- google-analytics.com
- facebook.com

Additionally, an "**Add to cart**" event is sent to the following entities when a medication is added to the cart for purchase:

- googleads.g.doubleclick.net
- facebook.com
- google-analytics.com
- google.com/pagead
- google.co.in/pagead

The **quantity of the medication** being purchased is shared with the following:

- facebook.com
- google-analytics.com

*Feature: Book lab tests*
This page allows users to book medical diagnostic tests. The name of the chosen test (example: diabetes care) is shared with the following entities:

- analytics.google.com
- googleads.g.doubleclick.net
- google.com/pagead
- google.co.in/pagead
- login-ds.dotomi.com
- google-analytics.com
- facebook.com

The cost of the test is shared with the following:

- facebook.com

Feature: Health blog

The health blog shows users health related blogs. The title of the blog post being viewed (example: 10 Natural Ways To Check Pregnancy At Home) is shared with the following:

- googleads.g.doubleclick.net
- google-analytics.com
Feature: Surgeries

The surgeries page shows users information about surgeries along with a list of specialists. The name of the chosen surgery is shared with the following entities:

- googleads.g.doubleclick.net
- google.com/pagead
- google.co.in/pagead
- google-analytics.com
- Facebook.com

9. Sirona

9.1 Name and version of the App

App Name: Sirona
Date of analysis: April 2023

9.2 Trackers
● Adobe Experience Cloud
● CleverTap: analytics, profiling, location
● Facebook Analytics: analytics
● Facebook Login: identification
● Facebook Share
● Google CrashLytics: analytics
● Snowplow: analytics


9.3 Permissions requested

This app requests 22 permissions, including approximate location, calendar, and the ability to update files on the device storage


9.4 Data collection consent banner

There is no consent banner or privacy policy presented until the login screen which comes up for the period tracking and payment features of the app.

Prior to this, users can browse the shop of the Sirona app for products. Browsing the shop for available products is not protected by a phone number.

9.5 Main domain to where the data is sent

● acl.mgapis.com
● Files.thesirona.com - this is where the website is drawing images etc from

9.6 Domains to which advertising ID is sent.
Not available

9.7 Unexpected data sharing

Feature: Navigating to a product

The app has a shop that sells menstrual and feminine hygiene products that users can browse before reaching the password protected features of the app. A user can click on a menu category to bring up all the products being sold by Sirona in that category.
Clicking on a menu category, for example ‘Period Care’, shares the name of the category clicked with the following:

- myglamm.data.adobedc.net

**Feature:** A product is selected
Once a product is selected, the following trackers get the **name of the product** example ‘menstrual cup steriliser (electric)’:

- api2.branch.io
- peve.myglamm.com/com.snowplow/tp2
  - Product info encoded to base 64
- jnn-pa.googleapis.com/$rpc/google.internal.waav1.Waa/create
- graph.facebook.com

The following get the **cost of the product** selected in addition to the name:

- api2.branch.io
- graph.facebook.com
- peve.myglamm.com/com.snowplow/tp2

**Feature: add to cart**

When a product is added to cart, the following trackers get the event and item name or code

- peve.myglamm.com/com.snowplow/tp2
- graph.facebook.com

**Feature: Log in**

The intent to log in is picked up the following

- Myglamm.data.adobedc.net
  - The carousel that was clicked: “carousel_3_period tracker_7”
- graph.facebook.com
- firebaseremoteconfig-pa.googleapis.com