

The Metabolic Command Center:

A Hybrid Digital Ecosystem for Deterministic Clinical Governance

Overcoming Clinical Inertia and Bridging the Health Literacy Gap in
Tier-2 India via Localized Informatics and ABDM Integration.

Architect

Dr. Chander Bafna, MBBS, MD
Founder & Lead Consultant, Bafna Health Care
Metabolic Health Center, Durg
Associate Professor of Internal Medicine

Event

NABH Digital Health Excellence Awards 2026
Submission Category: Disease/Care Management
June 30, 2026

Foundations of Digital Health

Health Data Portability

Allows health records to be accessed across different hospitals.

ABHA ID Enrollment

Ensures every patient receives a national health ID upon registration.

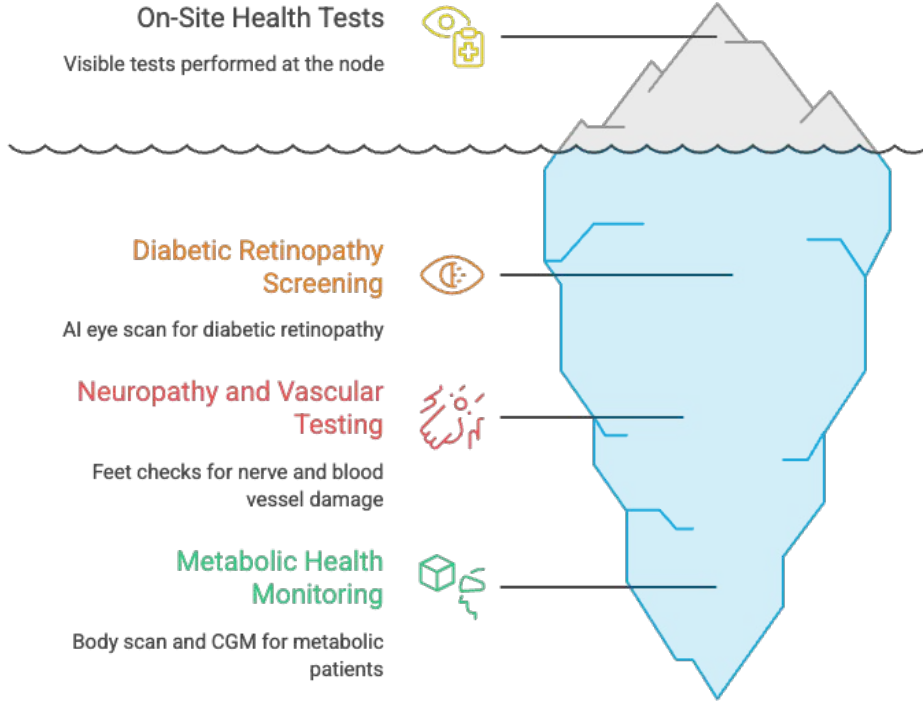
Data Privacy

Protects patient data according to India's digital data protection law.



Govt Health ID

Early Detection of Health Issues Through On-Site Tests.



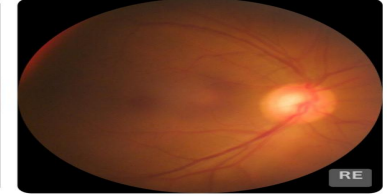
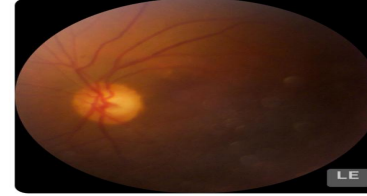
Retinopathy Report

Patient MRN: 878
Patient Name: [REDACTED]

Gender: [REDACTED]
Doctor: Dr. Chander Bafna

Age: [REDACTED]
Date: 25-June-2026

Result: **Signs of retinopathy seen right eye.**
Advised detailed ophthalmologic examination



Comment: **Consult Ophthalmologist for detailed examination.**

Doctor's Signature

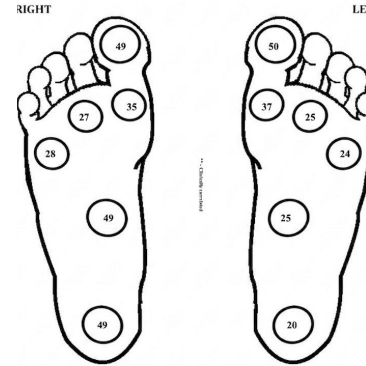
Patient MRN: 878
Patient Name: [REDACTED]
Ref: [REDACTED]

Gender: MALE
Date: 27-June-2026
Referral: Dr. Chander Bafna

Patient MRN: 878
Patient Name: [REDACTED]
Ref: [REDACTED]

Gender: MALE
Date: 27-June-2026
Referral: Dr. Chander Bafna

BIOthesiometry STUDY

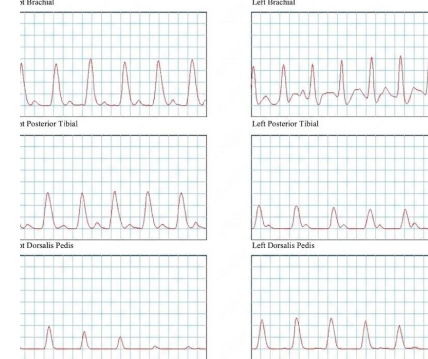


RE: **40 Severe Loss of Vibratory Perception**** **30 Severe Loss of Vibratory Perception****

5 Volts is 7 times more prone to ulceration in a diabetic foot than a normal foot. It is increasing to 23 times after the threshold, higher the risk.

CS: NR - No

Ankle Brachial Index Doppler Report



Position	Brachial	PT	DP	ABI
Right	120	100	90	0.83
Left	110	100	90	0.83

TASC II Guideline for ABI
0.91 to 1.40 - NORMAL 0.71 to 0.90 - MILD PAD
0.41 to 0.70 - MODERATE PAD <0.40 - SEVERE PAD
>1.40 - INCOMPRESSIBLE (CALCIFIED) ARTERY

Interpretations:
lateral PAD, Mild right PAD, Mild left PAD, marks:

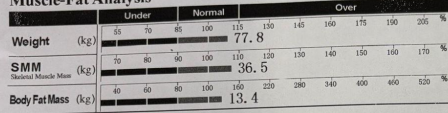
consultant: Dr. Chander Bafna
examination: MBBS, MD-Internal Medicine

All test results
Please refer to the facility website
www.dharmachandrabafna.com

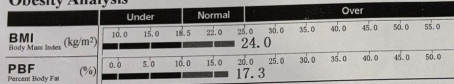
Body Composition Analysis

Total amount of water in my body	Total Body Water (L.)	47.3	(40.0 ~ 49.0)
What I need to build muscles	Protein (kg)	12.7	(10.7 ~ 13.1)
What I need for strong bones	Mineral (kg)	4.37	(3.71 ~ 4.53)
Where my excess energy is stored	Body Fat Mass (kg)	13.4	(8.6 ~ 17.1)
Sum of the above	Weight (kg)	77.8	(60.6 ~ 82.0)

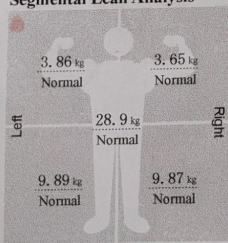
Muscle-Fat Analysis



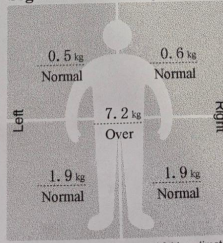
Obesity Analysis



Segmental Lean Analysis

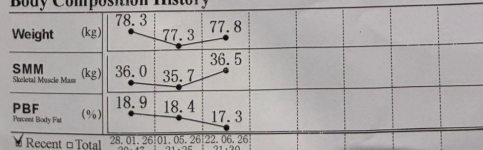


Segmental Fat Analysis



* Segmental fat is estimated.

Body Composition History



InBody Score

82/100 Points

* Total score that reflects the evaluation of body composition. A muscular person may score over 100 points.

Weight Control

Target Weight	75.7 kg
Weight Control	-2.1 kg
Fat Control	-2.1 kg
Muscle Control	0.0 kg

Obesity Evaluation

BMI	☒ Normal ☐ Under ☐ Slightly Over ☐ Over
PBF	☒ Normal ☐ Slightly Over ☐ Over

Waist-Hip Ratio

0.89

Visceral Fat Level

Level 6

Research Parameters

Fat Free Mass	64.4 kg	(54.5 ~ 66.6)
Basal Metabolic Rate	1760 kcal	(1656 ~ 1941)
Obesity Degree	109 %	(90 ~ 110)
SMI	8.4 kg/m²	
Recommended calorie intake	2752 kcal	

Calorie Expenditure of Exercise

Golf	137	Gateball	148
Walking	156	Yoga	156
Badminton	176	Table Tennis	176
Tennis	233	Bicycling	233
Boxing	233	Basketball	233
Mountain Climbing	254	Jumping Rope	272
Aerobics	272	Jogging	272
Soccer	272	Swimming	272
Japanese Fencing	389	Racketball	389
Squash	389	Taekwondo	389

* Based on your current weight
* Based on 30 minute duration

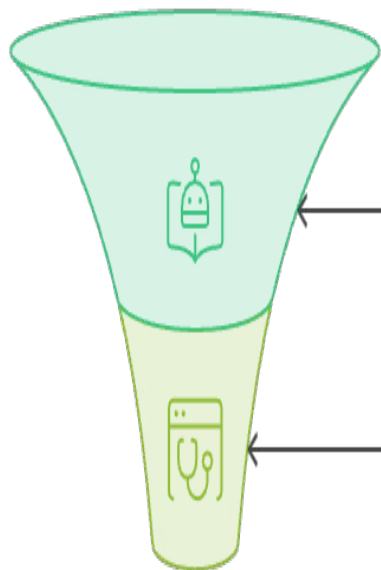
Impedance

	RA	LA	TR	RL	LL
Z ₀ (kΩ)	20	311.8	292.2	22.5	268.2
100 kHz	274.0	256.8	18.7	238.5	235.2

- ACCURATE AND QUALITY CONTROLLED TECHNICAL OBESITY/BODY COMPOSITION ASSESSMENT
- MONITORED OVER TIME ON SUBSEQUENT VISITS
- FED INTO THE PRESCRIPTION ALGORITHM FOR ACCURATE DOSE SELECTION

Streamlining Medical Research for Doctors

New Research Studies



AI Summarization

Doctor Review

Efficient Research Review

Made with Napkin

2. Send Message

Setup > Configure > Test

User Message

1. Raw Description: BackgroundHeart...into HF wit

1. Description: BackgroundHeart...into HF wit

1. Link: <https://pubmed...0.post6+133c1fe>

System

You are an expert physician. Summarize the following study abstract. Format the output with these bold headers: PICO Breakdown, Methodology Check (note any bias), Clinical Bottom Line (how it impacts metabolic or allergy practice), and Teaching Pearl (a 1-sentence takeaway for medical students) with previous strong evidence of this topic presented in a MCQ patterns with answers and explanations.

Model

Claude Haiku 4.5

Search mail

chander.bafna@gmail.com

to me

Thu, Apr 16, 11:56 AM

BAFNA HEALTH CARE

Daily Research Brief

Thursday, April 16, 2026 · 3 papers · MCQs in Notion

Metabolic Heal	Hypothyroidism	Hyperthyroidia	Tropical
3	0	0	0

Study types: RCT Meta-Analysis Cohort Cross-Sectional

Verdicts: Practice-Changing Reinforces Guidelines

Hypothesis-Generating

Metabolic Health & Diabetes 3 papers

#1 STATE-OF-THE-ART REVIEW

Gut microbiome in type 2 diabetes: Insights from metagenomics, multi-omics, and diet-microbe interactions.

Gut Microbes · DATE: Dec 2026

FINDING T2D-associated dysbiosis: depleted SCFA-producers, enriched pro-inflammatory taxa; multi-omics links microbial shifts to reduced SCFA/secondary bile acid production, increased endotoxin metabolism.

LOCALLY RUN STREAMLIT CLINICAL ASSISTANT APP INTERFACE

Omniscient Clinical Assistant

Evidence from PubMed · Europe PMC · ClinicalTrials.gov · OpenFDA — synthesized into a clinical brief.

Clinical topic

e.g. metoprolol versus bisoprolol in hypertension

Select Output Type

 **Senior Physician
Brief**

 **Quick Reference
Card**

 **Drug Comparison
Table**

 **Journal Club Slide**

 **Senior Physician Brief** — Trials · Mechanism · OPD Takeaways · Guideline Relevance

 **Generate**

☐ Text only ?

< Manage app

EVIDENCE BASED OUTPUT OF A PYTHON RUN STREAMLIT APP WORKING AS AN AI CLINICAL ASSISTANT

QUICK REFERENCE CARD

GLP-1 Receptor Agonists in Sarcopenia

Dr. Chandar Bafna Bafna Metabolic Center, Raipur • 28 Jun 2026

VERDICT

GLP-1 RAs show promise for metabolic and weight benefits but evidence specifically addressing sarcopenia outcomes remains limited, with active trials underway to clarify muscle and bone effects.

15%+

Weight Loss in Trials

GLP-1/dual GIP-GLP-1 RAs in obesity/T2DM clinical trials (PMID 42280404)

Phase 3

Osteosarcopenia Trial Status

NCT07428746 investigating GLP-1 RA impact on muscle strength in older females with T2DM — not yet recruiting

FIRST LINE

GLP-1 RA therapy (e.g., semaglutide or liraglutide at standard approved doses) as part of routine clinical care in T2DM patients with concurrent sarcopenia risk — per ongoing trial protocol (NCT07428746); no sarcopenia-specific dose established yet.

SECOND LINE

Combine GLP-1 RA with Medical Nutrition Therapy (MNT) and resistance exercise to offset potential lean mass loss from appetite suppression-driven caloric reduction (PMID 42280404).

AVOID / CAUTION

Initiating GLP-1 RA without nutritional assessment in older sarcopenic patients — significant appetite suppression may worsen protein-calorie intake and accelerate muscle wasting (PMID 41965670, PMID 42280404).

MONITORING

Hand grip strength and Timed Up and Go test at baseline and 6 months (NCT07428746)

Dietary protein and micronutrient intake given appetite suppression risk (PMID 41965670)

Bone mineral density and bone turnover markers in older adults on long-term therapy (NCT07428746)

CLINICAL PEARL

Despite driving substantial weight loss, GLP-1 RAs may paradoxically accelerate sarcopenia by suppressing appetite and reducing protein intake unless proactive nutritional support is co-prescribed.

SOURCES

PMID 41819567 — Safety Profile of GLP-1 RAs (2026)

PMID 42238011 — Shared Decision-Making with GLP-1 RAs (2026)

PMID 42280404 — Adherence, Persistence and Nutritional Support with GLP-1 RAs (2026)

PMID 41965670 — Dietary Intake Patterns in Adults on GLP-1/GIP-GLP-1 RAs (2026)

For licensed healthcare professionals only • bafnahealthcare.com

Claude AI • 28 Jun 2026

Quick Reference Card — Glp 1 Ra In Sarcopenia

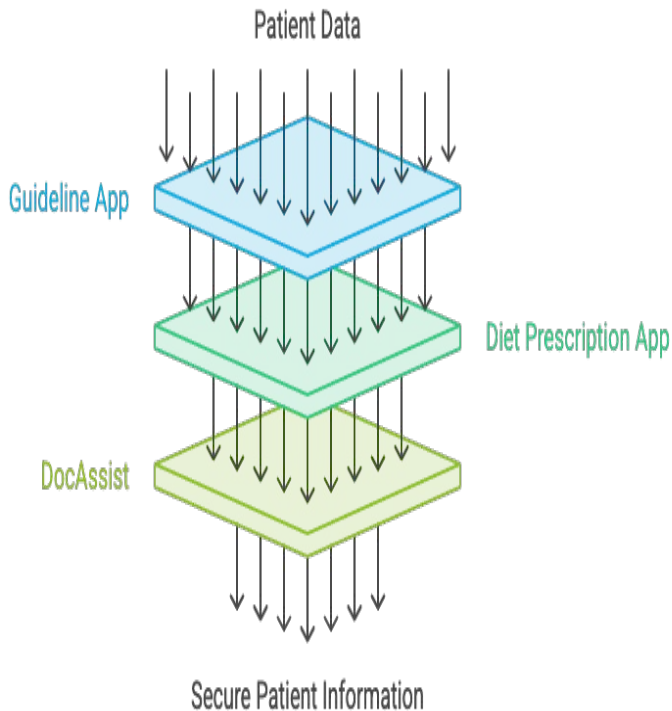
 Download PNG

 Download HTML

 Send to Telegram

 Save to Obsidian

Patient Data Processing Funnel



Made with Napkin

बाफना हेल्थ केयर मेटाबॉलिक आहार योजना

मधुमेह (Diabetes) और मोटापे (Obesity) से ग्रस्त उत्तर भारतीय रोगियों के लिए 1000 kcal और 80g प्रोटीन वाला आहार संतुलित और प्रभावी आहार चार्ट।

आहार के मुख्य नियम (Key Principles)

**हाई प्रोटीन और लो कैलोरी
(High Protein, Low Calorie)**
1000 kcal का लक्ष्य वजन घटाने में मदद करता है, जबकि 80g प्रोटीन मसालेदारों को बनाए रखता है और भूख कम करता है।

**3 मुख्य भोजन + 3 स्नेक्स
(Meal Pattern)**
शर्करा के स्तर में उलार-चढ़ाव को रोकने के लिए भोजन को छोटे-छोटे हिस्सों में बाँटकर दिन भर में 6 बार खाएं।

'माय प्लेट' (My Plate) विधि
सक्रियता (50%) अपनी प्लेट का आधा हिस्सा सब्जियों से, एक भीथाई प्रोटीन (दाल/मीट) से और केवल एक भीथाई अनाज से भरें।

शाकाहारी (Veg Option) **मांसाहारी/अंडा (Non-Veg/Egg Option)**
Approx. 300 kcal / 25-30g P

शाकाहारी (Veg Option) **मांसाहारी/अंडा (Non-Veg/Egg Option)**
Approx. 250 kcal / 20g P

सोते समय (Veg Option) **मांसाहारी/अंडा**
Approx. 40 kcal / 3g P

****संदर्भ (Reference):**
RESO 2023 Consensus Guidelines for Nutritional Management of People with Type 2 Diabetes (T30) in India.

1000 kcal मेटाबॉलिक आहार तालिका (Diet Chart)

शाकाहारी (Veg Option) **मांसाहारी/अंडा (Non-Veg/Egg Option)**
सुबह जल्दी (6:30 AM) Approx. 50 kcal / 2g P

शाकाहारी (Veg Option) **मांसाहारी/अंडा (Non-Veg/Egg Option)**
नाश्ता (8:30 AM) Approx. 200 kcal / 18g P

मध्य-प्रातः (Veg Option) **मांसाहारी/अंडा (Non-Veg/Egg Option)**
मध्य-प्रातः (11:00 AM) Approx. 60 kcal / 1-2g P

शाकाहारी (Veg Option) **मांसाहारी/अंडा (Non-Veg/Egg Option)**
दोपहर का भोजन (1:30 PM) Approx. 300 kcal / 25-30g P

शाकाहारी (Veg Option)
शाम की चाय (4:30 PM) Handful of roasted chana 100 kcal / 8-10g P

✓ क्या खाएं और क्या न खाएं (Dos & Don'ts)

इनसे बचें **इन्हें प्राथमिकता दें**
भीनी, राइब, गूरे, पैदा (सोमेट वेज/गन्), सरसंड बाजल और अधिक काला चावल। सोमेट वेज और पुरे तरह पहेसे करें।
फाइबर के लिए साबुत अनाज, जिनके काली चाले, पूरी परदार सब्जियाँ और कम गराइसमिक इंडेक्स (Low GI) वाले फल चुनें।

खाना पकाने की विधि
तलने (Frying) के बजाय उबालना (Boiling), भात देना (Steaming), या तिल करना (Grilling) पसंद करें।

DIETARY APP OUTPUT



Bafna Metabolic Centre

EMPATHY-DRIVEN CLINICAL NUTRITION & METABOLIC MANAGEMENT

Patient & Vitals

Lifestyle & Chrono

Meal Timing

Glycemic Profile

Labs & Report

Patient Demographics

Patient Name *	Weight (kg)	Primary Goal
abc	75.00 — +	Blood Sugar Control
Age (years)	Height (cm)	Activity Level
45 — +	165.00 — +	Sedentary (desk job, no ex...
Gender	Waist Circumference (cm)	Dietary Pattern
Male	90.00 — +	Vegetarian

Comorbidities

Select all active comorbidities

Choose options

Output Preferences

Report Language	Plan Duration	Report Tone
English	☒ 1-Day Snapshot ☐ 7-Day Matrix	Clinical & Formal

Clinical Math Engine

27.5
BMI
kg/m²

61.4
kg
IBW
Devine
formula

1561
BMR
kcal/day

187
4
TDEE
kcal/day

730
EST.
INTAKE
+1144
kcal gap

38.
6 g
PROTEI
N GAP
Target
68g

19.5
g
FIBER
GAP
Target
30g

Generate Personalised Diet Plan



Bafna Metabolic Centre

EMPATHY-DRIVEN CLINICAL NUTRITION & METABOLIC MANAGEMENT

Lifestyle & Chrono

Meal Timing

Glycemic Profile

Labs & Reports

Pharmacology

Report

When Can This Patient Actually Eat?

Fill in only the slots that are possible for this patient. Leave others blank. The plan will be built strictly within these windows — critical for shift workers and fasting patients.

Morning / Pre-Shift Slots

Wake-up / Shift-start time	Early morning snack (optional)	Breakfast window
06:00	— Not possible —	07:00

Mid-Day / Mid-Shift Slots

Mid-morning snack	Lunch window	Post-lunch snack (optional)
— Not possible —	12:00	— Not possible —

Evening / Post-Shift Slots

Evening snack	Dinner window	Bedtime snack (optional)
— Not possible —	17:00	— Not possible —

How the AI apps work — step by step

Two locally-hosted Streamlit apps · Claude API · Patient data never leaves the clinic



Privacy guarantee: Both apps run on the clinic computer only. Patient data is processed locally and is never sent to any external server or cloud platform. Only anonymised calculation inputs reach the Claude API.



guideline-app

Deterministic calculator · no AI guesswork

- 1 Doctor enters patient data**
Age, weight, height, kidney function, activity level, diagnosis
- 2 Fixed equations run**
BMR, calorie needs, protein targets calculated using validated formulas — same answer every time
Mifflin-St Jeor · ADA 2024 · ICMR-NIN
- 3 Safety flags generated**
Kidney and liver dose-adjustment warnings appear automatically
Zero missed warnings post-implementation
- 4 Output logged**
Every calculation saved with inputs and outputs — full audit trail



Diet Prescription App

Claude API · personalised 7-day meal plan

- 1 Receives calculation output**
Calorie target, macros, comorbidity flags passed in from guideline-app
- 2 Patient context added**
Food preferences, InBody body scan data, CGM sugar pattern, cultural food habits
Localised · Chhattisgarh food items
- 3 Claude API called**
Structured prompt sent · Claude generates personalised 7-day chronobiological meal plan
claude-sonnet-4-6 · structured output
- 4 Plan ready in seconds**
Meal timing, portions, medication windows — printed and sent on WhatsApp

↓ both apps connect to ↓



Claude API — Anthropic

Used only for diet prescription generation · receives anonymised calculation parameters only · no patient name, ID, or contact data transmitted · response used to build meal plan and returned to local app

claude-sonnet-4-6

Structured prompt

Local post-processing

No data stored externally

↓ outputs delivered to patient ↓



Printed prescription

A4 diet chart handed to patient at end of consultation



WhatsApp delivery

Prescription + Hindi infographic sent to patient's phone same day



Audit log saved

All calculations and prescription parameters stored locally for review

BUILT WITH

Python 3.11

Streamlit

Claude API

Anthropic claude-sonnet-4-6

Localhost · zero cloud

Mifflin-St Jeor equations

ADA 2024 guidelines

ICMR-NIN framework

								
 Gabden-GRS-300 Tablet GABAPENTIN (300MG)		0-0-1/2	At Bedtime	2 Weeks	eg: 3 day	Instructions	e.g 1 Tablet	
								
 Etrident 90mg Tablet ETORICOXIB (90MG)		1-0-1	After Meal	5 Days	eg: 3 day	SOS	1 tablet	
								
 Itra 200mg Capsule ITRACONAZOLE (200MG)		1-0-1	Timing	2 Weeks	eg: 3 day	Instructions	1 tablet	
								

 1 Likely drug to drug interactions. Please note that the following information is intended for reference purposes only. The final decision rests solely with the healthcare provider.

Sompraz 20 Tablet
Esomeprazole (20mg)

Itra 200mg Capsule
Itraconazole (200mg)

 Likely Drug Interaction

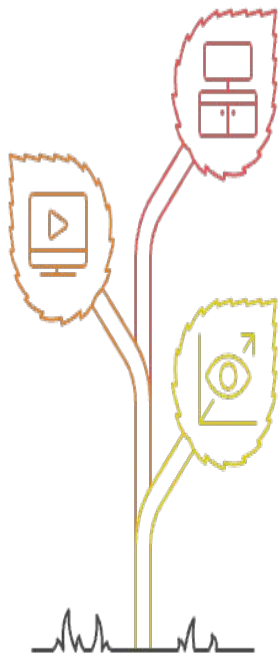
 Start typing Medicines

DRUG INTERACTION SAFETY CHECKER EMBEDDED IN PRESCRIPTION EMR WORKFLOW

Limited Health Education for Hindi Speakers

Health Videos

Short videos explain health topics
clearly



Waiting Room TV

Videos reinforce health messages before appointments

Visual Guides

AI-generated charts simplify complex health information

Made with Napkin

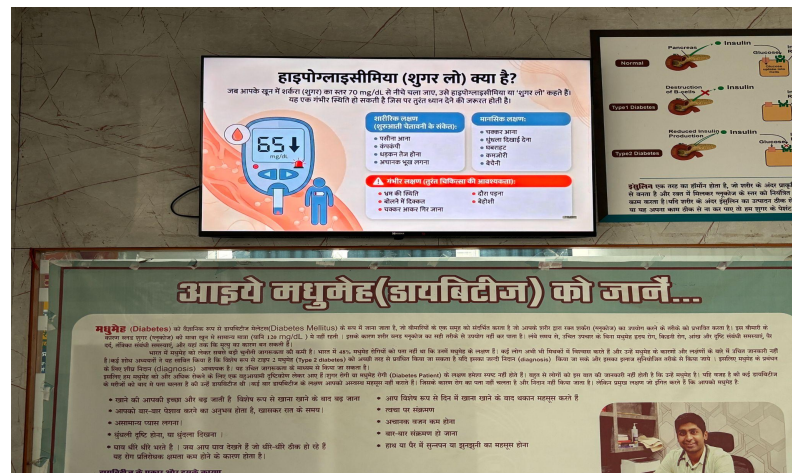


डायबिटीज और मोटापे में फैट ऑप्टिमाइजेशन

सही फैट का चुनाव: एक वैज्ञानिक और व्यावहारिक दृष्टिकोण

Dr. Chander Bafna
Bafna Healthcare, Durg

RSSDI 2025 और ICMR-NIN 2024 गाइडलाइन्स  NotebookLM



Dr. Bafna's Prescription
27 KB • pdf

Hi [REDACTED]

Your prescription from Dr. Chander Bafna is attached above for your reference.

Dr Bafna Clinic
Hi
This is EKA assistant
What can I do for you?

Upload Medical Records
Send it securely to Eka Care app

4:33 PM

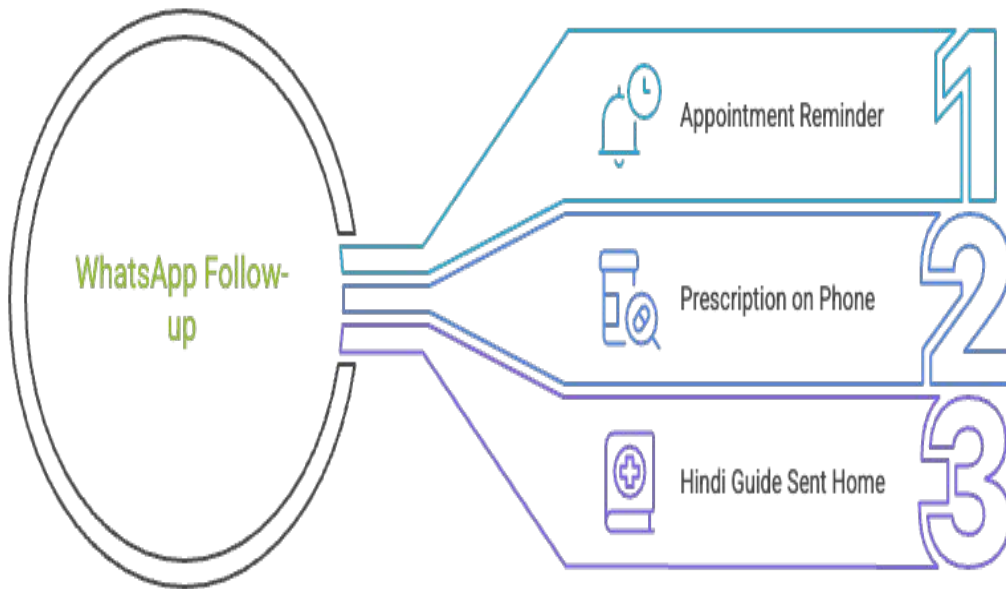


4:34 PM

File uploaded successfully!!
All the files you upload/forward in this whatsapp chat window will be uploaded to your vault <https://eka.im/hQ1Or8crFtb>

4:34 PM

Enhancing Patient Experience with WhatsApp



Made with Napkin

Message from Dr. Chander Bafna

Hi [REDACTED],

I would like to know if you would be coming for your follow up appointment Tomorrow, 2nd Apr '24.

- Tap 'Yes' to confirm.
- Tap 'No' if you are not coming.

8:34 AM

Yes, I will come

No, I will not be coming

I'll come at a later date

9 Mar 2024

ABHA No. (Health ID)

आधार के बाद अब बनाएँ आभा आईडी कार्ड



Dear [REDACTED],

Dr. Chander Bafna invites you to join India's health revolution!

Get Your ABHA Card for anytime access to all your health records, an initiative of the Indian government under the Ayushman Bharat Digital Mission (ABDM).

12:54 PM

Get Your ABHA Card Now

ABHA-linked Patient Care Improves Outcomes

ABHA-linked

Digital health record access



Reduced Errors

Fewer medical mistakes made

Faster Reading

Less time spent on text

Increased Access

More patients on WhatsApp

More Scans

Higher number of eye exams

ABHA Adoption

Significant ABHA linkage rate

The Future of Tier-2 Digital Health

“The greatest barrier to digital healthcare in India is not technical availability—it is clinical motivation.

By merging secure national networks with deterministic local engineering, we can deliver elite, error-free metabolic care to every patient, regardless of geography or health literacy.”



Absolute Clinical Safety: Zero-error deterministic computation replacing manual variance.



Frictionless Engagement: Bridging the Hindi literacy gap via visual, automated WhatsApp delivery.



Uncompromising Privacy: A zero-cloud clinical engine paired with ABDM-compliant national architecture.

Thank You.

Dr. Chander Bafna | Founder, Bafna Metabolic Centre, Durg