

CELLOXEN HEALTH PORTAL

Complete Patient Journey Logic Flow

Technical Documentation & System Architecture

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Status: Production System Documentation

Location: Aberdeen, Glasgow, Edinburgh, Manchester (UK)

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1. EXECUTIVE SUMMARY

The Celloxen Health Portal is a comprehensive multi-tenant clinic management platform designed for holistic wellness therapy services across UK clinics. This document details the complete patient journey from initial contact through therapy completion, including technical implementation details and system architecture.

Key Features:

- Multi-tenant architecture supporting multiple clinics
- 35-question wellness assessment system
- AI-powered iridology analysis (Anthropic Claude API)
- Professional PDF report generation
- Patient portal with secure authentication
- Comprehensive therapy management (in development)
- Email notification system (IONOS SMTP)

Current Status: 45% Complete (Phase 2: 90% Complete)

2. SYSTEM OVERVIEW

2.1 Core Therapy Domains

Code	Therapy Domain	Focus Area
C-102	Vitality & Energy Support	Energy, fatigue, metabolic function
C-104	Comfort & Mobility Support	Pain, inflammation, joint mobility
C-105	Stress & Anxiety Relief	Mental wellness, relaxation, mood
C-107	Metabolic Wellness	Weight, blood sugar, metabolism
C-108	Digestive Health	Digestion, gut health, comfort

2.2 System Architecture

Backend: Python FastAPI + PostgreSQL + asyncpg

Frontend: React 18 + Tailwind CSS

Infrastructure: Ubuntu 24.04 + Nginx + SSL

AI Integration: Anthropic Claude API

Email: IONOS SMTP

Authentication: JWT tokens + RBAC

3. PHASE 1: PATIENT ONBOARDING

3.1 Initial Contact

Patient contacts clinic via phone, email, or walk-in. Receptionist gathers basic information and books initial consultation appointment.

3.2 Patient Registration in System

Process Flow:

1. Clinic staff logs into Clinic Portal
2. Navigates to: Dashboard → Patients → Add New Patient
3. Completes registration form:
 - Personal Information (Name, DOB, Address, Phone, Email)
 - Medical History (Conditions, Medications, Allergies)
 - Emergency Contact Details
4. Clicks 'Save Patient'
5. System generates unique Patient Number (e.g., CLX-ABD-00010)
6. Patient record created in database

Database: patients table

Status: ■ Fully Operational (9 active patients)

4. PHASE 2: PRE-ASSESSMENT QUESTIONNAIRE

4.1 Email Invitation System

Clinic staff sends secure email invitation containing unique registration token and link to online wellness assessment portal.

Email Template:

Dear [Patient Name],

Welcome to Celloxen Health Portal. Please complete your wellness assessment by clicking the secure link below:

<https://celloxen.com/register?token=abc123xyz...>

This assessment takes approximately 10-15 minutes and will help us provide personalized wellness therapy recommendations.

Best regards,
Aberdeen Wellness Centre Team

Technical Implementation:

- IONOS SMTP integration
- Unique token generation (UUID)
- Token expiration: 7 days
- Database logging of all email events

STATUS: ■ Fully Operational

4.2 Patient Online Registration

Patient clicks email link and arrives at secure registration portal. Token is validated, and patient sees personalized welcome message.

4.3 35-Question Wellness Chatbot

Interactive chatbot guides patient through comprehensive wellness assessment covering five therapy domains. Each domain contains 7 questions scored on 1-5 scale.

Questionnaire Structure:

Domain	Code	Questions	Max Score
Vitality & Energy Support	C-102	7	35
Comfort & Mobility Support	C-104	7	35
Stress & Anxiety Relief	C-105	7	35
Metabolic Wellness	C-107	7	35
Digestive Health	C-108	7	35

TOTAL		35	175
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Scoring Algorithm:

Raw Score = Sum of all answers (35 to 175)

Wellness Score = $((\text{Raw Score} - 35) / 140) \times 100$

Example: $105/175 \rightarrow 50\%$ wellness score

Status: ■ Fully Operational

5. PHASE 3: COMPREHENSIVE IN-CLINIC ASSESSMENT

5.1 Smart Assessment Dashboard

When practitioner opens Smart Assessment and selects a patient, the system displays comprehensive assessment interface with aviation-style wellness domain dials, progress monitoring, and integrated AI wellness consultant.

Dashboard Components:

- **Patient Overview Card:** Name, ID, contact details, full record link
- **Assessment Progress Monitor:** Visual progress bar with module status
- **Wellness Domain Dials:** Five aviation-style analogue gauges (0-7 scale)
- **Assessment Modules:** Four cards (Questionnaire, Iridology, Analysis, Report)
- **Therapy & Appointments Panel:** Current therapy, previous assessments, upcoming appointments
- **AI Wellness Consultant:** Integrated chat panel for real-time guidance

Current Implementation Status:

- Dashboard UI: 100% complete
- Data Integration: Uses mock data (needs API connection)
- AI Consultant: UI complete, backend not connected

5.2 Iridology Image Capture & AI Analysis

Practitioner captures iris images using either live camera or file upload. System sends both images to Anthropic Claude API for professional iridology analysis.

Capture Methods:

Option 1: Camera Capture

- Live webcam or specialized iris camera
- Real-time video preview
- Capture left eye, then right eye
- Images stored as base64

Option 2: File Upload

- Select pre-captured images
- Supports JPG, PNG formats
- Left and right eye images
- Automatic resizing and optimization

AI Analysis Components:

Component	Description	Output
Constitutional Type	Lymphatic, Hematogenic, or Mixed based on iris color	Type classification
Constitutional Strength	Fiber density and integrity assessment	Score 1-10
Body Systems	5 major systems (Digestive, Nervous, Circulatory, Respiratory, Endocrine)	Severity & Strength
Iris Signs	Lacunae, nerve rings, crypts, pigment spots, etc.	List of identified signs
Primary Concerns	Top 3 wellness areas needing attention	Prioritized list
Recommendations	Diet, lifestyle, stress management suggestions	Actionable advice

Technical Implementation:

- API: Anthropic Claude (claude-sonnet-4-20250514)
- Cost: ~\$0.03 per analysis (~£0.02)
- Processing time: 10-15 seconds
- Database: iridology_findings table
 - Status: ■ Backend fully operational (built 12 Nov 2025)
 - Status: ■■ Frontend needs connection

5.3 Integrated Recommendations Engine

System combines questionnaire scores and iridology findings to generate personalized therapy recommendations for each of the five wellness domains.

Recommendation Generation Process:

1. Analyze questionnaire domain scores (0-7 scale)
2. Review iridology constitutional type and strength
3. Assess body system conditions and severity
4. Calculate priority level (High/Moderate/Low) for each domain
5. Determine if therapy is recommended (Yes/No)
6. Calculate session requirements:
 - Number of sessions (typically 12-18)
 - Session frequency (2-3x per week)
 - Total duration (4-8 weeks)
 - Session length (30-45 minutes)
7. Generate key benefits list (4-5 points)
8. Create personalized rationale explaining recommendation
9. Store integrated recommendations in database

Example Recommendation Output:

C-102 Vitality & Energy Support

Priority: HIGH (Critical wellness level)

Recommended: YES

Sessions: 12 sessions

Frequency: 3x per week

Duration: 4 weeks

Session Length: 30 minutes

Key Benefits:

- Enhanced cellular energy production
- Improved mental clarity and focus
- Better stress resilience
- Optimized metabolic function

Rationale: Your assessment shows critical energy levels (score: 2.1/7) combined with weak constitutional strength (8/10). C-102 therapy is recommended to enhance your vitality and prevent future health concerns.

Status: ■ Fully Operational (built 12 Nov 2025)

5.4 Professional PDF Report Generation

System generates comprehensive multi-page PDF report containing all assessment results, iridology findings, and therapy recommendations in professional format.

Report Structure:

Page 1: Cover & Patient Information

- Celloxen Health Portal branding
- Report title and date
- Patient details (name, ID, DOB)
- Practitioner and clinic information

Page 2: Assessment Results

- Overall wellness score (0-100%)
- Questionnaire results table (5 domains with scores and priorities)
- Iridology findings summary
- Constitutional type and strength
- Primary body systems affected
- Key iris signs identified

Page 3: Therapy Recommendations

- Detailed recommendations for each therapy domain
- Priority classification (High/Moderate/Low)
- Session requirements and frequency
- Key benefits for each therapy
- Personalized rationale

Page 4: Legal Disclaimer

- Wellness assessment disclaimer
- Medical advice disclaimer
- Complementary therapy statement
- GP consultation recommendation

Technical Specifications:

- Library: ReportLab (Python)
- Format: PDF version 1.4
- Pages: 3-4 pages typical
- File size: 5-10KB
- Language: British English throughout
- Branding: Celloxen colour scheme (purple/blue)

Test Result: 3-page report generated (5.2KB)

6. PHASE 4: THERAPY PLANNING

6.1 Therapy Plan Creation

Following assessment completion and report review, practitioner creates customized therapy plan based on recommendations. Patient provides consent before therapy begins.

Status: ■ Not Built (Phase 3 - Pending)

6.2 Appointment Booking System

Bulk booking system for scheduling multiple therapy sessions across several weeks. Integrates with clinic calendar and sends automated reminders.

Status: ■ Not Built (Phase 3 - Pending)

7. PHASE 5: PATIENT PORTAL ACCESS

Patients can log into secure portal to view assessment results, therapy plans, appointments, and download reports.

Available Features:

- Secure login with JWT authentication
- Dashboard with wellness score
- View assessment summary
- Download PDF reports
- Profile management

Status: ■■ 95% Complete (mostly functional)

8. PHASE 6: ONGOING THERAPY

8.1 Session Tracking

System to track therapy session attendance, practitioner notes, and patient progress throughout treatment programme.

Status: ■ Not Built (Phase 3 - Pending)

8.2 Progress Monitoring & Re-Assessment

Mid-course reviews and re-assessments after 3-6 months to measure improvement and adjust therapy plans as needed.

Status: ■ Not Built (Future Feature)

9. TECHNICAL ARCHITECTURE

9.1 System Components

Component	Technology	Version/Details
Operating System	Ubuntu Server	24.04 LTS
Web Server	Nginx	Reverse proxy + SSL
SSL Certificates	Let's Encrypt	Auto-renewal
Backend Framework	Python FastAPI	Async/await support
Database	PostgreSQL	Version 15
Database Driver	asyncpg	Async PostgreSQL driver
Frontend Framework	React	Version 18 (CDN)
CSS Framework	Tailwind CSS	Version 3
Authentication	JWT Tokens	Bearer token auth
Access Control	RBAC	Role-based permissions
AI Integration	Anthropic Claude	claude-sonnet-4-20250514
Email Service	IONOS SMTP	Production SMTP
PDF Generation	ReportLab	Python library

9.2 Database Schema

Core Tables:

- **patients** - Patient demographics and medical history (9 records)
- **users** - System user accounts with authentication
- **comprehensive_assessments** - Assessment responses and scores (25 records)
- **iridology_findings** - AI analysis results and constitutional data
- **therapy_correlations** - Mapping between assessments and therapies
- **invitation_tokens** - Secure registration tokens
- **chatbot_sessions** - AI consultant conversation sessions
- **chatbot_messages** - Individual chat messages and responses

9.3 API Endpoints

Authentication:

- POST /api/v1/auth/login - User authentication
- GET /api/v1/auth/me - Get current user

Assessment System:

- POST /api/v1/assessments/comprehensive - Create assessment
- POST /api/v1/assessments/{id}/iridology - AI iridology analysis

- GET /api/v1/assessments/{id}/complete - Get full assessment data
- GET /api/v1/assessments/{id}/report - Generate PDF report

Patient Management:

- GET /api/v1/clinic/patients - List all patients
- GET /api/v1/patients/{id} - Get patient details
- POST /api/v1/patients - Create new patient

10. CURRENT STATUS & ROADMAP

10.1 Project Status Overview

Phase	Component	Status	Progress
1	Foundation & Infrastructure	■ Complete	100%
2	Health Assessment System	■■ Almost Complete	90%
	• Email Invitations	■ Complete	
	• Patient Registration	■ Complete	
	• 35-Q Questionnaire	■ Complete	
	• AI Iridology	■ Backend Complete	
	• PDF Reports	■ Complete	
	• Frontend Integration	■■ Needs Wiring	
3	Therapy Management	■ Not Started	0%
4	Notifications	■■ Partial	40%
5	Patient Portal	■■ Mostly Done	60%
6	Analytics & Reporting	■ Not Started	0%
7	Polish & Optimization	■ Not Started	0%
8	Launch Preparation	■ Not Started	0%

10.2 Key Achievements (12 November 2025)

- Integrated Anthropic Claude AI for iridology analysis
- Built professional PDF report generator (ReportLab)
- Created recommendation engine combining questionnaire + iridology
- Completed 4 new backend API endpoints
- Successfully tested with real patient data (Bassam Khalil)
- Generated first complete assessment report (3 pages, 5.2KB)

10.3 Immediate Next Steps

Priority 1: Frontend Integration (3-4 hours)

1. Connect loadPatientAssessment() to real API
2. Wire iridology upload to backend endpoint
3. Add onClick handler to 'CONTINUE ASSESSMENT' button
4. Connect AI consultant to chatbot backend
5. Test complete end-to-end flow

Priority 2: Build Therapy Management (3-4 weeks)

1. Design therapy plan creation UI
2. Build appointment booking system
3. Implement session tracking
4. Create progress monitoring
5. Build mid-course review functionality

10.4 Timeline to Production

Milestone	Duration	Target
Fix Frontend Integration	1 week	Week 1
Build Therapy Management	3-4 weeks	Weeks 2-5
Complete Notifications	2 weeks	Weeks 6-7
Finish Patient Portal	2 weeks	Weeks 8-9
Essential Reporting	1-2 weeks	Weeks 10-11
Testing & Polish	2-3 weeks	Weeks 12-14
PRODUCTION READY		Week 14

Estimated Time to Production: 10-14 weeks

APPENDIX: SYSTEM CREDENTIALS & REFERENCES

■■ CONFIDENTIAL INFORMATION - DO NOT DISTRIBUTE

A.1 Database Credentials

```
Host: localhost  
Port: 5432  
Database: celloxen_portal  
User: celloxen_user  
Password: CelloxenSecure2025
```

A.2 Clinic User Credentials

```
Email: staff@aberdeenwellness.co.uk  
Password: Staff123!  
Role: clinic_user
```

A.3 API Keys

```
Anthropic Claude: Configured in /var/www/celloxen-portal/backend/.env  
IONOS SMTP: Configured in backend
```

A.4 File Locations

```
Backend: /var/www/celloxen-portal/backend/  
Frontend: /var/www/celloxen-portal-new/frontend/  
Logs: /var/log/celloxen-backend.log
```

A.5 Current Live Data

```
Active Patients: 9  
Completed Assessments: 25  
Generated Reports: 1 (test)  
Active Clinics: 1 (Aberdeen Wellness Centre)
```

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```

END OF DOCUMENT

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