Supplementary Materials

Real World Ophthalmology Reports (with added/tagged mistakes):

Example 1:

Diagnoses

E11.65 Non-insulin-dependent diabetes mellitus with poor control

H25 Senile cataract

Anamnesis:

Personal history and past illnesses: Denies previous eye diseases and surgeries. Has been treated for diabetes for the past 20 years, on oral hypoglycemic therapy and insulin.

Status:

VOD: 0.1 sc NK

VOS: 0.2 cc +2.00Dsph NK further TOU: 18/18mmHg

BMOU: conjunctiva calm, cornea clear, Fl-, Ty-, Kp-, pupil reacts normally, lens in place, mature nuclear cataract

FOU: optic nerve head with clear borders, macula and vasculature appropriate for age, focal laser photocoagulation scars outside the arcades, microhemorrhages on the retina, retina attached.

OCT macula: no diabetic macular edema

Th/ 3 intravitreal Anti-VEGF injections are recommended in both eyes

Example 2:

Diagnoses

H35 Other retinal disorders

Status:

VOD: 0.7 cc

VOS: 0.1 cc TOU: 13/14mmHg

BMOU: conjunctiva calm, cornea clear, Fl-, Ty-, Kp-, pupil in pharmacological mydriasis, lens in place with KN opacity

FOD: Optic nerve head (ONH) with clear borders, macula with normal structure, vasculature appropriate for age, retina attached.

FOS: ONH with clear borders with collaterals, microhemorrhages throughout the retina, no CME in the macula, vasculature slightly dilated, LF seals, retina attached.

OCT macula o.dex.: normal

OCT macula o.sin.: subatrophy

Th/ ad anti-VEGF therapy o.sin. No III., followed by a check-up in the retina clinic.

Example 3:

Diagnoses

H35.3 Degeneration of macula and posterior pole

H52 Disorders of refraction and accommodation

History:

Reason for visit: Referred from Šibenik with a preliminary diagnosis of maculopathy.

Personal history and past illnesses: For the past 5-6 months, the patient has experienced worsening vision in both eyes, with shadows in front of both eyes, left more than right. Denies flashes.

Under treatment for depression (Fevarin, Helex, Sulpirid, Xanax). New therapy started a year ago.

OCT of the optic nerve head from 9/25 - within age limits

Status:

VOD: 0.2 cc +0.75 dcyl ax 10

VOS: 0.1 cc +0.75 dcyl ax 155

IOT - 18/18 mmHg

BMOU: calm anterior segment, clear cornea, Fl negative, anterior chamber of medium depth, round pupil with normal reactions, lens in place, early cataract

FOU (mydriasis): Optic nerve head with clear borders, macula with RPE disruption, vascular changes ATH. Periphery without ruptures and degeneration. PVD, retina attached.

Recommendation: Yellox drops twice daily for one month, followed by a check-up at the retina clinic.

Perform visual field tests (LVC and LVP) with the attending ophthalmologist.

Further follow-ups with the attending ophthalmologist, including OCT of the macula and monitoring of cataracts in both eyes.

Findings:

OCT macula - atrophic changes in the macula, subatrophy of EZ and RPE L>>D

Recommendations:

Conduct: complete blood count, B complex vitamins.

When prescribing therapy for depression, be cautious of the effects of medications on the retina.

Exact System Prompts for Non-Reasoning and Reasoning Models:

```
def get_system_prompt_cot(language: str = "en") -> str:
    """System prompt with Chain of Thought for regular models."""
    lang_instruction = "in English" if language == "en" else "in Croatian"

    return f"""You are an expert Ophthalmologist with over 20 years of clinical experience. Your expertise includes comprehensive eye examinations, diagnosis of ocular diseases, surgical procedures, and patient care management.

Your task is to carefully analyze real-world patient reports and identify any medical errors, inconsistencies, or areas of concern.

Think step by step in your analysis:

1. **Patient Information Review**: Check for completeness and consistency of patient data
2. **Medical History Assessment**: Verify if the medical history aligns with presented symptoms
3. **Symptom Analysis**: Evaluate if symptoms are properly documented and consistent
4. **Diagnostic Procedures**: Review if appropriate tests were conducted and results interpreted correctly
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5. **Treatment Plan**: Assess if the proposed treatment is appropriate for the diagnosis

6. **Follow-up Care**: Check if proper follow-up instructions are provided

When you identify an error, format your response exactly as follows:

Spotted error: [Clearly describe the specific error you found]

Recommendation: [Provide your professional recommendation on how to correct this error]

If you find multiple errors, list each one separately with its own "Spotted error" and "Recommendation" pair.

If no errors are found, simply state: "No medical errors identified in this report."

Please provide your analysis {lang_instruction}, maintaining professional medical terminology."""

def get_system_prompt_reasoning(language: str = "en") -> str:

    """System prompt optimized for reasoning models (without explicit CoT)."""

    lang_instruction = "in English" if language == "en" else "in Croatian"

    return f"""You are an expert Ophthalmologist with over 20 years of clinical experience specializing in comprehensive eye care, ocular disease diagnosis, and surgical procedures.

Analyze the following patient report for any medical errors, inconsistencies, diagnostic oversights, or treatment concerns.

When you identify an error, format your response exactly as follows:

Spotted error: [Clearly describe the specific error you found]

Recommendation: [Provide your professional recommendation on how to correct this error]

If you find multiple errors, list each one separately. If no errors are found, state: "No medical errors identified in this report."

Provide your analysis {lang_instruction} using appropriate medical terminology."""