Validation of the Refractive Error & Optical Service Delivery Model for Bhutan

Delphi Round 1 Questionnaire

* Indicates required question

Section A: Introduction for Participants

Dear Participant,

You are invited to take part in the first round of a Delphi survey to validate a proposed **Refractive Error and Optical Service Delivery Model for Bhutan**. This model was developed based on a national situational analysis using the WHO Refractive Error Situation Analysis Tool (RESAT).

The purpose of this Delphi process is to seek **expert consensus** on the **relevance, feasibility, and expected impact** of each component of the model. Your input will ensure the model is contextually appropriate, feasible, and aligned with Bhutan's health system priorities.Kindly note that is a part of a PhD project and approved by REBH.

Please rate each item on a **5-point Likert scale**:

- **Relevance:** How important is this component for addressing refractive error in Bhutan?
- **Feasibility:** How realistic is it to implement this component within Bhutan's current system?
- **Expected Impact:** How much impact will this component have on increasing refractive error coverage and improving equity?

Scale:
1 = Very Low / Not at all
2 = Low
3 = Moderate
4 = High
5 = Very High

There are also open-ended questions at the end to capture your detailed views.

Thank you

Indra

1. ***Before you proceed kindly note the following:***

1. Voluntary participation

Your participation is voluntary, and you can withdraw from the study even after agreeing to participate. We shall not provide any incentive for your participation.

2. Confidentiality

The information that we collect from this research project will be kept totally confidential and will not be disclosed to anyone. The information obtained will STRICTLY be used for this research purpose only.

3. Sharing of results

The questionnaire you fill will be coded and all data will be made anonymous. Individual's names or any personal identifiers shall not be analyzed, reported or published anywhere.

Do you agree to participate?

Mark only one oval.

- ◯ Yes
- ◯ No

Domain 1

Community Level

2. 1. **Community awareness campaigns in local languages** to increase uptake of refractive error services

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

3. 2. **Community awareness campaigns in local languages** to improve spectacle compliance and reduce stigma.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

4. 3. Provision of **subsidized spectacles (discounted price)** for children, elderly, and low-income groups.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

5. 4. Provision of **free spectacles** for children, elderly, and low-income groups. *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

6. 5. **Workplace and community outreach** for refractive error should be conducted at least twice annually

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

Domain 2

Primary Health Centers and Schools

7. **1. Preschool and school-based vision screening** integrated into existing school health programs.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

8. **2. Task-sharing of vision screening to teachers and health assistants** (after appropriat training)

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

9. **3. Prescription and dispensing of reading spectacles** by health assistants *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

Domain 3

District and 10-Bedded Hospitals

10. **1. Deployment of optometrists to every district hospital and 10-bedded hospital** to provide refraction services.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

11. **2. Co-location of optical shops within hospitals** through public–private partnerships (PPP).

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

12. **3. Use of tele-refraction services** in remote districts to support diagnosis and prescription.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

13. **4. Training of Health Assistants** for vision refraction and dispensing *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

Domain 4

District and RRHs

14. **1. Expansion of specialized refractive services** such as pediatric refraction, myopia management, contact lenses, and low vision care

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

15. **2. CME and refresher course** for existing eye care professionals on refraction and dispensing

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

16. **3. Documentation and reporting** of refractive error cases in ePIS in detail *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

Domain 5

GKCWNEC (Apex Center)

17. **1. Expansion of specialized refractive services** such as pediatric refraction, myopia management, contact lenses, and low vision care

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

18. **2. Myopia control intervention should be strengthened** *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

19. **3. Training/recruitment of specialized optometrist** to provide advanced refractive error services

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

20. **4. Training/recruitment of ophthalmic assistants for specialized** refractive error services

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

21. 5. Start the services for **refractive surgery** *

Mark only one oval per row.

	1	2	3	4	5
Relevance					
Feasibility					
Expected Impact					

22. 6. **Establish optical shop** within the GKCWNEC complex by the hospital *

Mark only one oval per row.

	1	2	3	4	5
Relevance					
Feasibility					
Expected Impact					

Domain 6

National

23. **1. Establishment of a National Refractive Error Taskforce** under the Ministry of Health/ National Medical Service.

Mark only one oval per row.

	1	2	3	4	5
Relevance					
Feasibility					
Expected Impact					

24. **2. Establishment of a stand alone National Refractive Error Policy**. *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

25. **3. Development of national quality standards and regulatory oversight for optical shops and dispensing practices.**

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

26. **4.** eREC and spectacle-coverage indicators be integrated into the **Health Management Information System (HMIS)**.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

27. **5. Implementation of regular quality audits** and monitoring systems for refractive error services

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

28. **6. Develop national guidelines** for refractive error management and implement uniformly across the country

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

29. **7. Inclusion of spectacles in the essential medical supplies list** *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

30. **8. Inclusion of spectacle in health insurance coverage.** *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

31. 9. Bhutan should **establish an in-country optometry degree programme** under KGUMSB..

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

32. 10. Partnerships with **private optical outlets** be formalised for subsidised dispensing in underserved areas.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

33. 11. Performance evaluation for eye-care staff should include **quality-of-care and productivity indicators**.

Mark only one oval per row.

	1	2	3	4	5
Relevance					
Feasibility					
Expected Impact					

34. 12. Each Dzongkha should have at least one optical shop *

Mark only one oval per row.

	1	2	3	4	5
Relevance					
Feasibility					
Expected Impact					

35. 13. **Population-based RE surveys** (e.g., RAAB/RARE) should be repeated every 5 years

Mark only one oval per row.

	1	2	3	4	5
Relevance					
Feasibility					
Expected Impact					

36. 14. Eye-health and vision screening education should be integrated into **HA and nursing curriculum at KGUMSB**.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

37. 15. Eye-health education and vision screening should be integrated into **school curricula and teacher training**.

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

38. 16. Screening of children for admission in pre-primary (PP) should be made mandatory *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

39. 17. Set up self-check vision screening areas in public spaces and schools *

Mark only one oval per row.

	1	2	3	4	5
Relevance	◯	◯	◯	◯	◯
Feasibility	◯	◯	◯	◯	◯
Expected Impact	◯	◯	◯	◯	◯

Open ended questions

40. 1. Which three components are **most critical** for achieving universal eREC in Bhutan? *

41. 2. What **specific strategies** do you recommend to improve equity and affordability of refractive error services in Bhutan?

42. 3. Any other comments

Demographics

43. Name (optional) - Please include if you want to be part of co-author

44. Designation *

Mark only one oval.

- Ophthalmologist
- Optometrist
- Ophthalmic Assistant
- Resident

45. Years of experience in eye health *

Thank you

Thank you for your time and valuable input. Your participation will help ensure that Bhutan develops a refractive error and optical service delivery model that is equitable, feasible, and aligned with the national goal of achieving universal effective refractive error coverage by 2030.

We will get back to you with second round of the Questionnaire based on results of this

PLEASE NOTE THAT IF YOU COMPLETE BOTH SURVEYS YOU WILL BE ELIGIBLE FOR GROUP AUTHORSHIP