

National Vision Hearing Screening

The programme

- Mass screening of children (3 to 11 years old) to identify prevalent, undetected ear and eye problems requiring further assessment and/or treatment
- Testing carried out using appropriate equipment/tools in specific environments by trained personnel
- Referrals to appropriate agencies using identified indicators for screening
- Documentation of results and counting of statistical information.

Age(s) of child

- **3 years**
 - tympanometry screening.
- **4 years**
 - distance visual acuity
 - penlight/cover test for squint.
- **5 years/school new entrant**
 - audiometry screening
 - tympanometry screening
 - distance visual acuity
 - penlight/cover test for squint.
- **11 years**
 - distance visual acuity
 - colour vision for boys.
- **Parental/teacher/general practitioner concern**
 - all or any of above tests dependent on concern.

Purpose

- To determine distance visual acuity and the need for refractive correction at an age when amblyopia may still be treatable in younger children, and at an age where incidence of myopia increases in older children
- To detect the presence of hearing impairment and/or OME, and to refer to appropriate agencies.

Personnel

The national screening programme is delivered by Vision Hearing Technicians who have received the officially recognised National Audiology Centre training course, and are competent to deliver services according to the *Vision Hearing Screening National Protocol*.

Recommended procedure

- Provide care in a culturally appropriate manner
- **Hearing acuity**
 - Use Pure Tone Audiometer & tympanometer
- **Distance visual acuity**
 - Use Letter-matching Test with crowding (confusion bars) for non-verbal responses.
 - Use Snellen Letter Chart where verbal responses are appropriate
- Generate NHI coded list of children to test
- Gain informed consent from parent/caregiver of each child (prior to screening)
- Gain co-operation and participation from children
- Ensure correct handling, use and maintenance of screening equipment
- Provide test result feedback
- Provide appropriate explanations of test procedures and interpretations of results to parent/caregiver of each child (post screening), and to other health professionals as necessary
- Use appropriate referral pathway - ensure children get access to specialist services through referral and resource options
- Document findings fully and accurately including in the *Well Child-Tamariki Ora Health Book*
 - Supply standardised notation of test results onto school record card (E19/22A) of each child
 - Report result (pass/fail/retest) to Kidslink when available
 - Record daily the numbers of children tested, cohort grouping, number referred, ethnic grouping
 - Collect and report required statistics
 - Report statistical information to National Audiology Centre annually
- Achieve a minimum 16 hours per week hearing and vision screening work.

Educational preparation needs to include:

- **Hearing:**
 - the basic structure and function of the outer, middle and inner ears
 - sources of conductive and sensorineural hearing loss
 - nature of sound and the decibel scale
 - audiometric configuration of hearing loss: degree and shape, and differentiate between conductive and sensorineural hearing loss
 - ideal test room conditions, and measures of how to achieve this
 - equipment checks on the audiometer and tympanometer

- threshold audiometry in a clinic situation
- audiometry and tympanometry screening
- explanations of test procedures and interpretations of results to other health professionals and parents.
- **Vision:**
 - basic structure and function of the visual system
 - refractive anomalies
 - development and visual function of the eye
 - optics of lenses
 - methods of measuring visual acuity
 - colour vision and defects of this, and their detection
 - binocular co-ordination, normal binocular vision, defective binocular vision, and the measures used to detect some of these problems
 - the problems occurring with Vision and Visual Acuity Screening.
- referral criteria and identify the correct referral options
- role of the Vision Hearing Technician in the community
- correct handling, use and maintenance of screening equipment
- recording visual acuity screening, binocular tests, hearing screening and tympanometry screening
- record-keeping procedures including Kidslink once this is available
- statistical data collection, including ways in which statistics can be collected accurately and efficiently.

Training

- Vision Hearing Technicians must:
 - be formally trained and must meet the prerequisites and requirements of the Introductory Vision Hearing Screening Training Course
- be monitored biannually and deemed to be competent by the monitoring process to deliver the service as per the *Vision Hearing Screening National Protocol*
- undertake regular in-service updates.

Test environments

Registered Pre-school/Early Education Centres.

State/Private Primary Schools.

State/Private Intermediate Schools.

Defined Clinic settings.

Referral pathway

See Screening Referral Criteria flowcharts on page 92.

Resources

- Calibrated screening audiometer (.5kHz,1kHz, 2kHz, 4kHz @ 0 –100dB presentation range);
- calibrated screening tympanometer (+200 – -400daPa range);
- Parr Letter-Matching Test (with Confusion Bars);
- Snellen-ratio Letter Chart;
- Ishihara’s Tests for Colour Deficiency (24 plate edition);
- penlight; black eye patch (tie-on or elasticated); hand held Eye Occluder (Denver model or similar); cover paddle/target;
- written and other resources produced by the Ministry of Health, available from public health providers and www.healthed.govt.nz;
- resources recommended by National Audiology Centre.

Rationale

A formal test of visual acuity at the earliest age at which it can be performed is invaluable for the detection of asymptomatic visual problems.

The school new entrant hearing screening test is currently the only universal screen which tests hearing acuity. This may be the only opportunity for a child with a sensorineural hearing loss to be found. (For example, in one year at a major hospital, six children with a moderate, permanent sensorineural hearing loss were detected.)

Issues for resolution

Optimum ages for screening – still to discuss with Children’s Vision Strategy Group, NZQA etc.

Introduction of +2.5 D lens for near vision testing.

Introduction of binocular integrity (Lang).

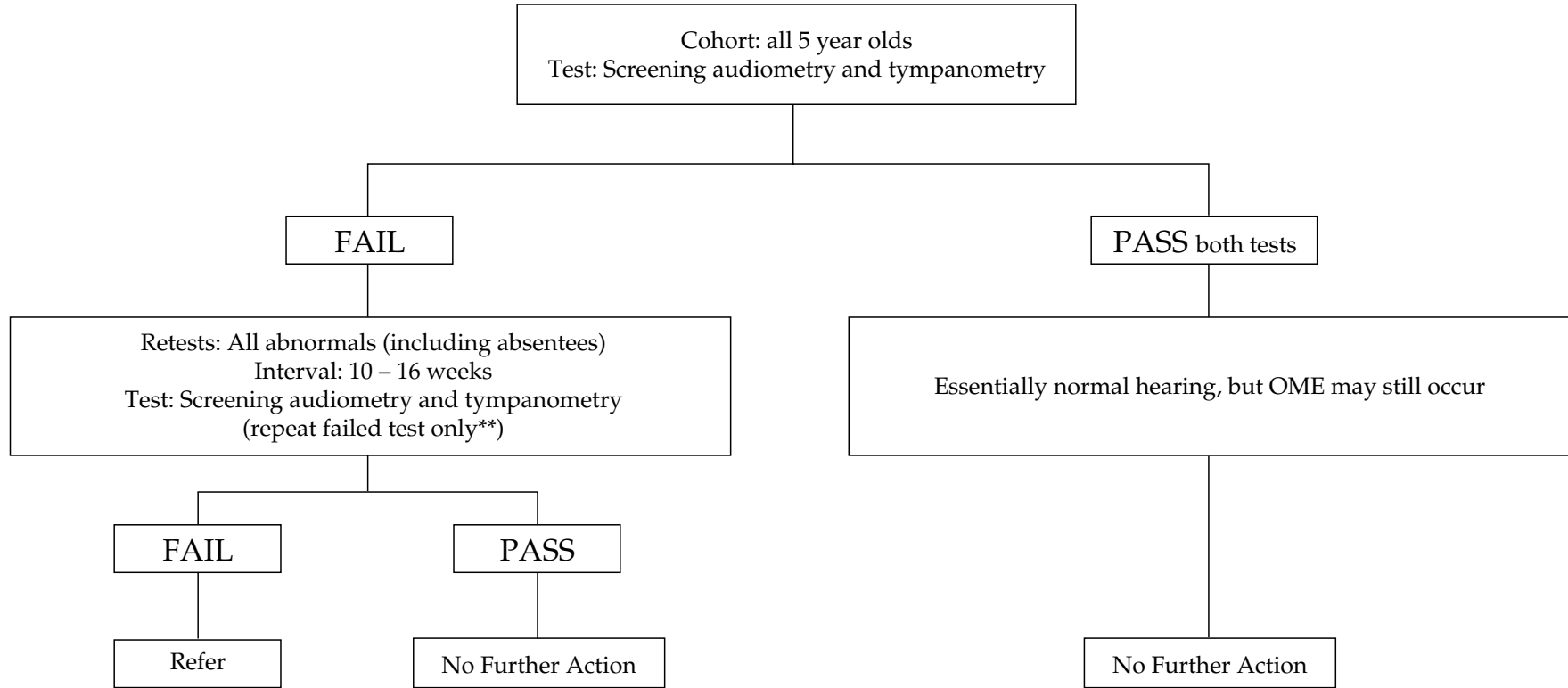
Referral pathways following failure of screen.

Role of Colour Vision Testing.

Low coverage rate of 3 year old tympanometry screen. The effectiveness of this component needs to be evaluated.

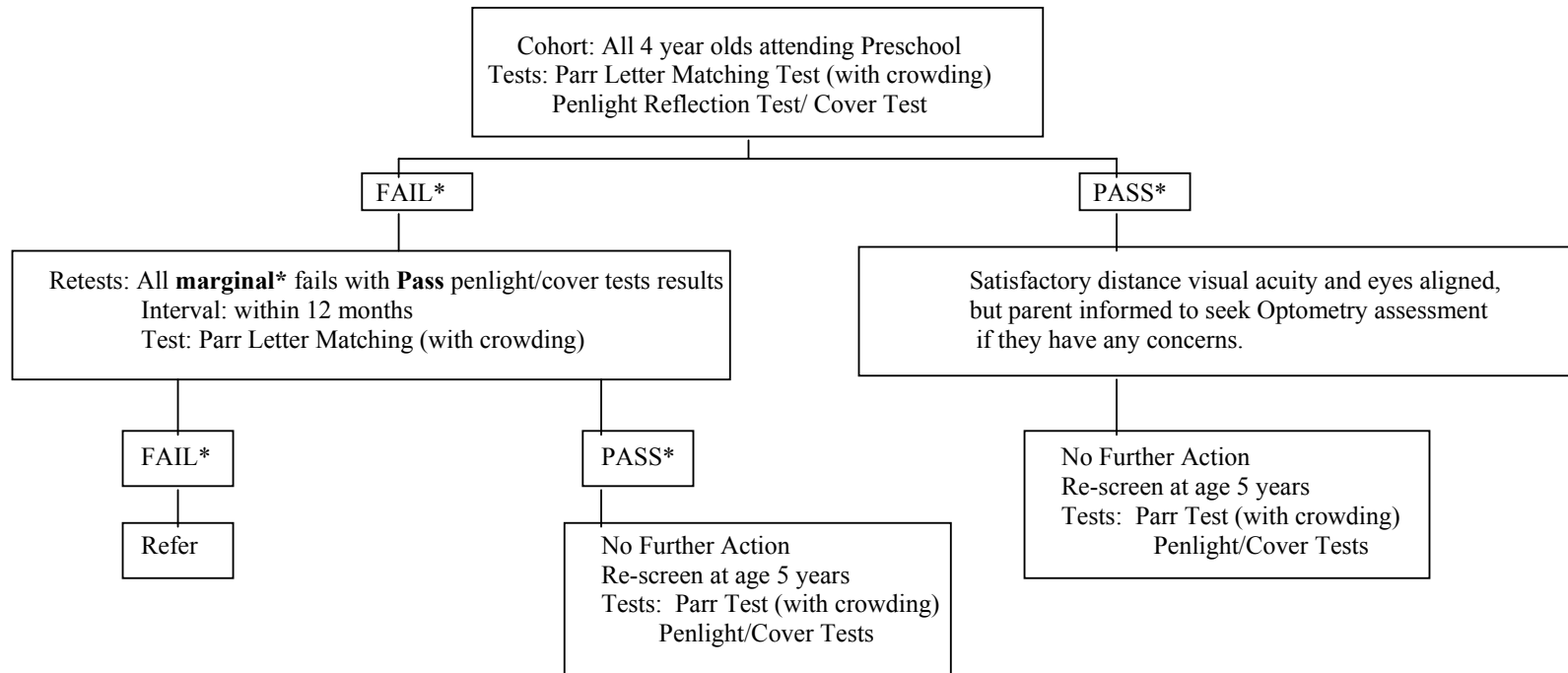
To investigate whether pure tone audiometry could be replaced by another screening tool eg, Otoacoustic Emissions (OAE).

Chart 1: Hearing Screening Protocol at School Entry



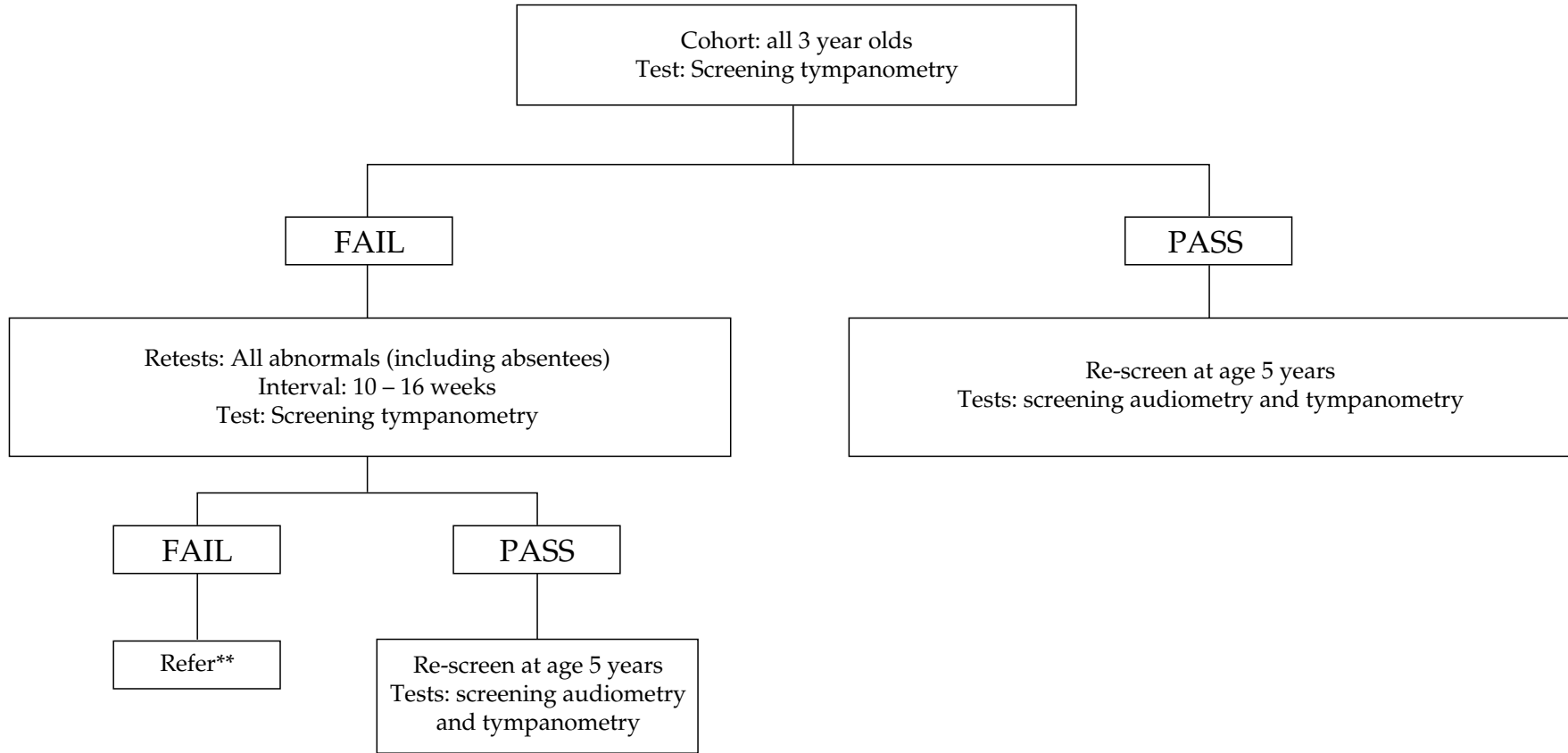
Note: All screening to be carried out by Vision Hearing Technicians
*See Chart 3 for pass/fail criteria

Chart 1a: Screening Protocol – Preschool Vision



Note: All screening carried out by Vision Hearing Technicians
*See attached Chart 4 for pass/fail criteria

Chart 2: Hearing Pre-School Screening Protocol



Note: All screening to be carried out by Vision Hearing Technicians

***See Chart 3 for pass/fail criteria**

Chart 3: Hearing Screening Referral Criteria

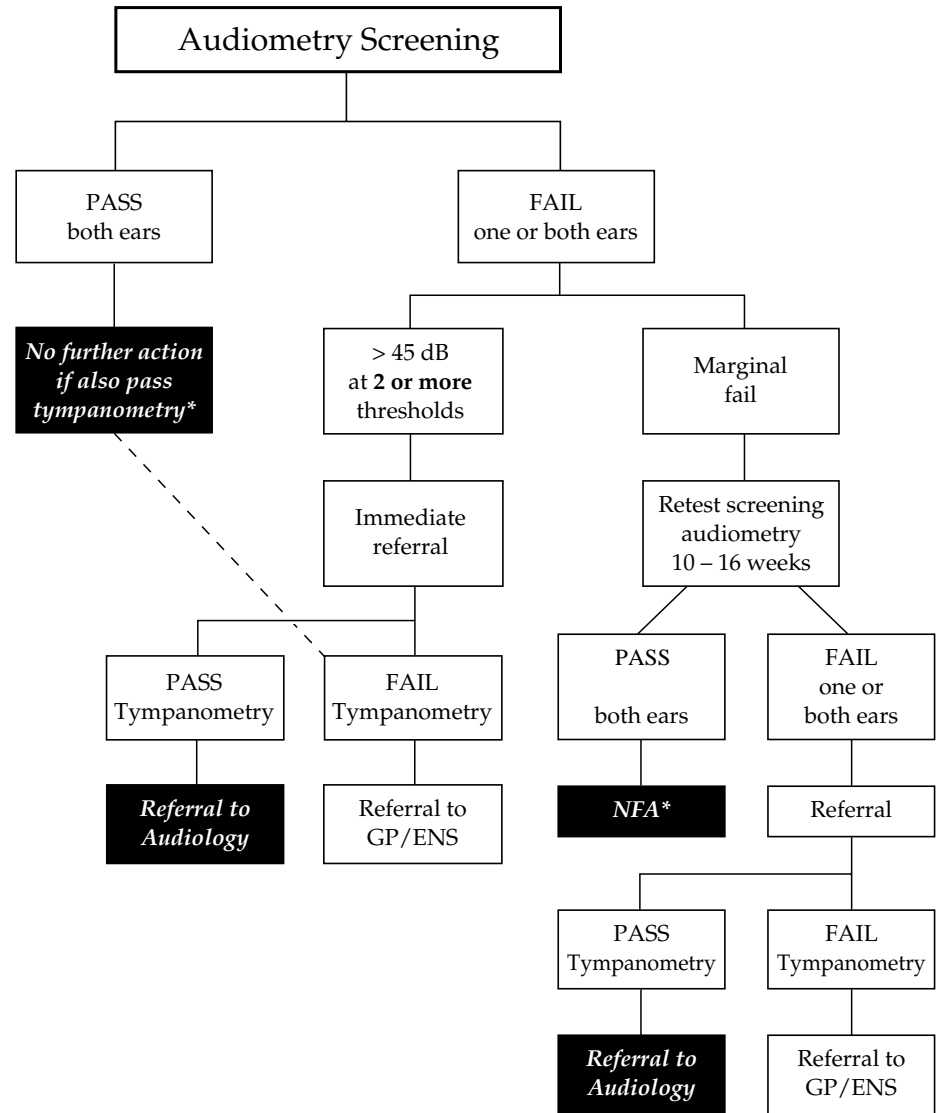
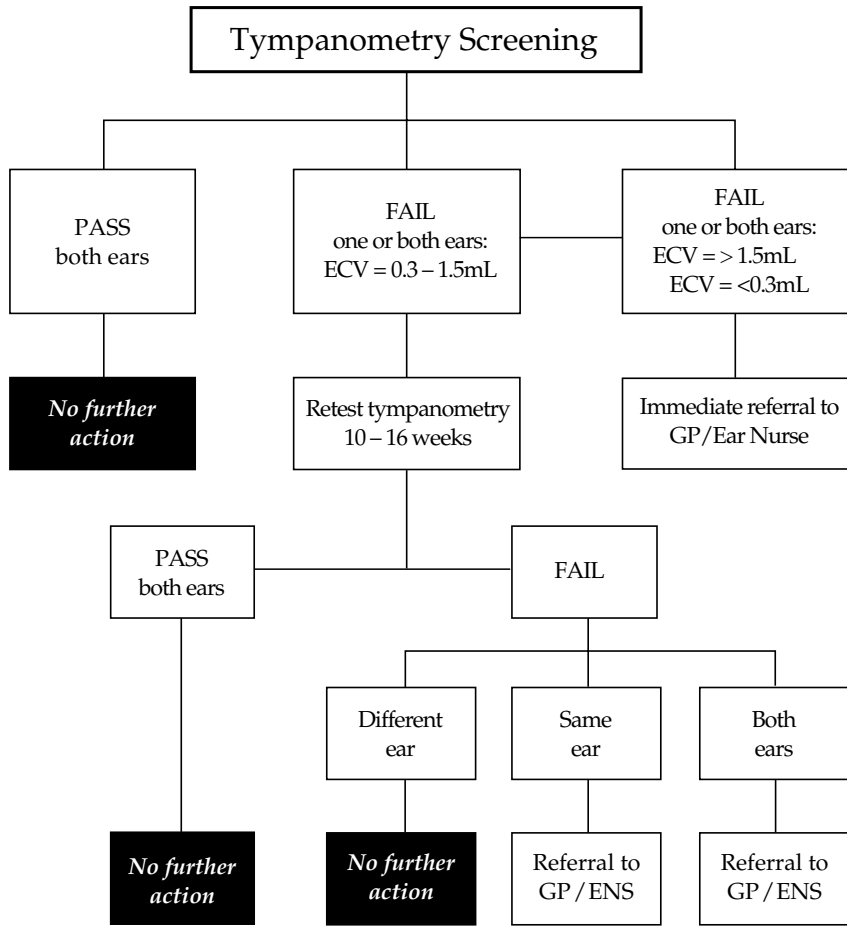
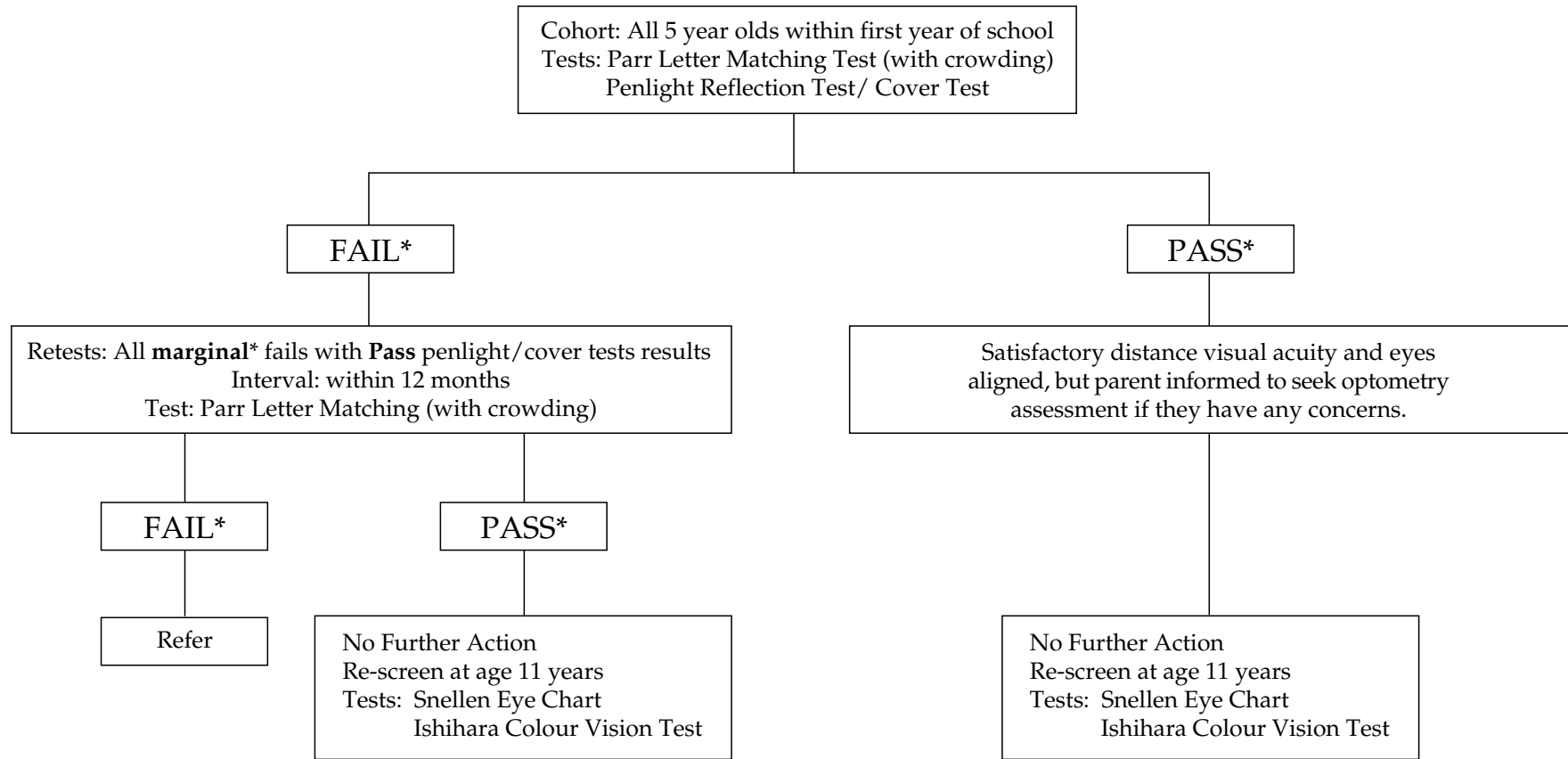


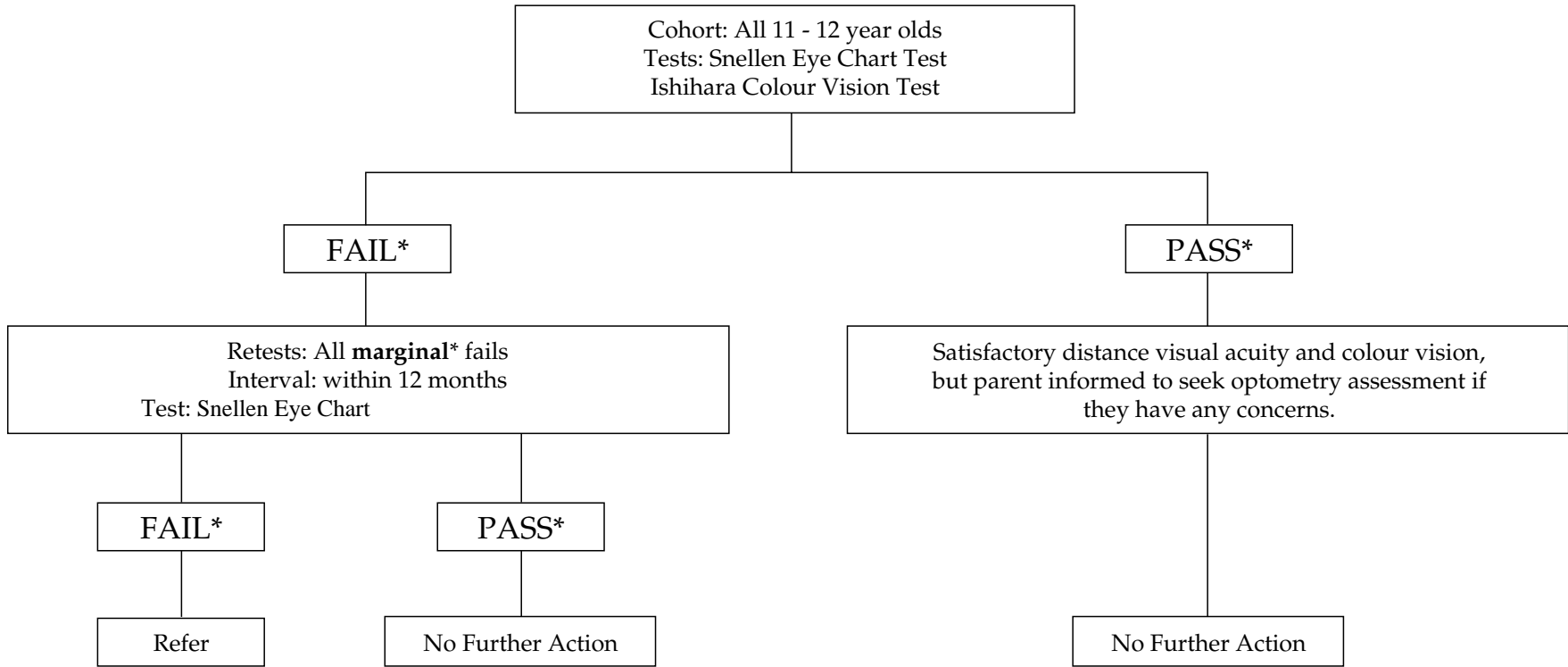
Chart 4: Vision Screening Protocol at School Entry



Note: All screening carried out by Vision Hearing Technicians

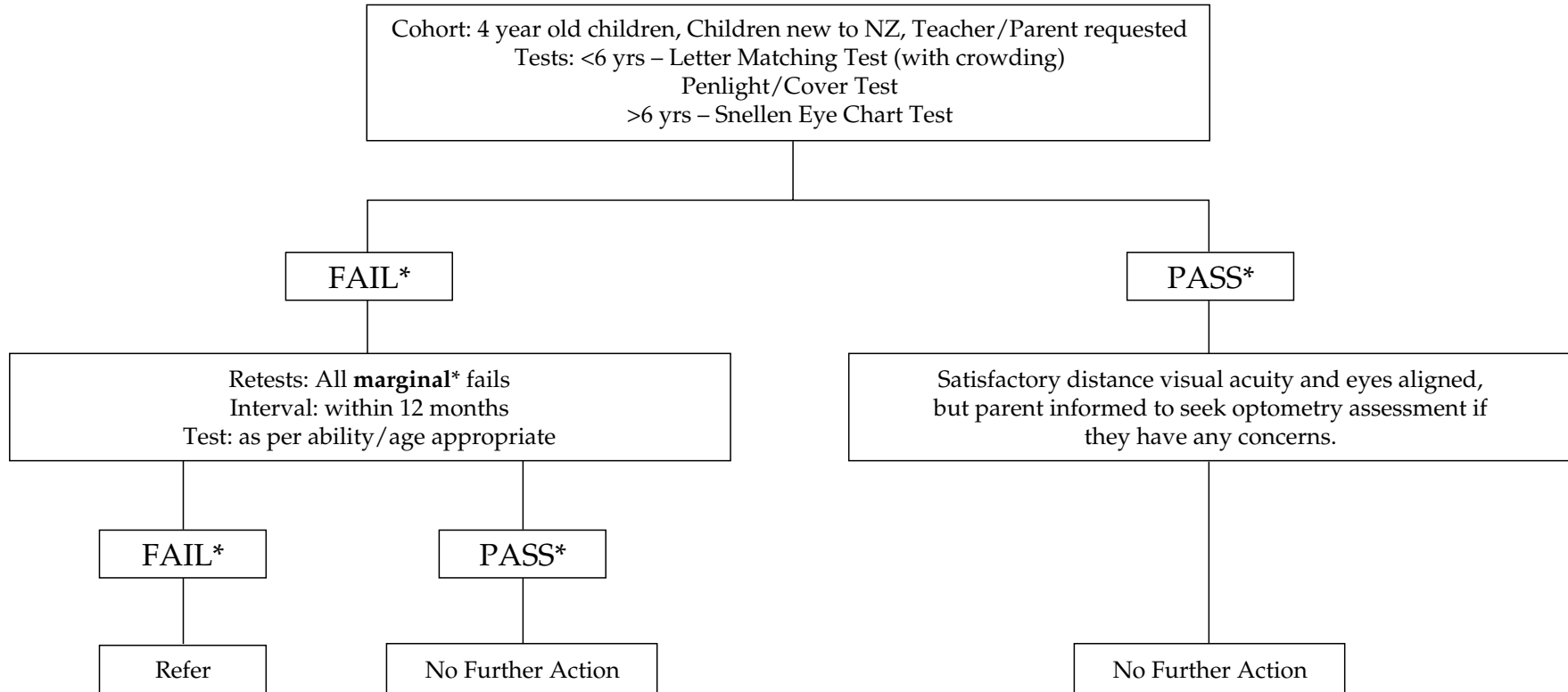
***See attached Chart for pass/fail criteria**

Chart 5: Vision Screening Protocols at Year 7



Note: All screening carried out by Vision Hearing Technicians
***See attached Chart for pass/fail criteria**

Chart 6: Vision Screening Protocol for Other Children



Note: All screening carried out by Vision Hearing Technicians
 *See attached Chart for pass/fail criteria

Chart 7: Vision Screening Referral Criteria

