



NZ POLICE MEDICAL STANDARDS

*Medical standards for applicants to  
enter & complete recruit training*

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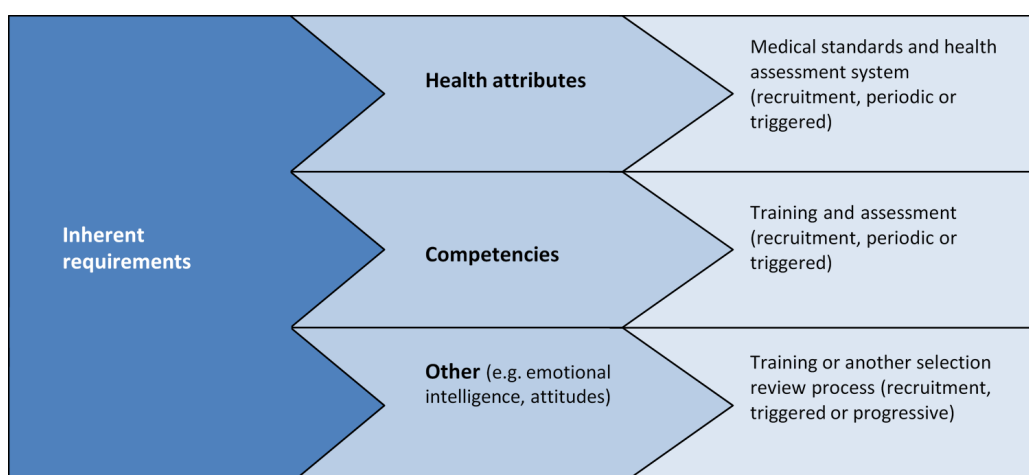
## Introduction and Guiding Principles

*NZ Police has a duty of care under HSW Act 2015 to ensure the health and safety of Police Officers as far as reasonably practical. This includes a responsibility to ensure the health and fitness of Police Officers so they may conduct physically and psychologically demanding duties safely and effectively. There is also a duty of care to other workers and the public. The management of medical fitness for duty is also governed by obligations under Human Rights Act, Employment Relations Act and under ACC legislation. It is not possible to discriminate on the basis of health or disability if these issues are not demonstrably relevant to the capacity to safely perform the role of Police Officer.*

By clearly outlining the health requirements for Police work, NZ Police seeks to meet its obligations in terms of duty of care, antidiscrimination and equal employee opportunity. It also seeks to ensure consistency and transparency in the assessment of health conditions within a NZ Police context.

As such the health standards for NZ Police must be developed using a risk assessment approach that acknowledges the specific demands of the role. This requires an understanding of the inherent requirements of Police work within the NZ context.

The use of health standards to assess medical fitness for work sits alongside other entry assessments and requirements. These are used to assess other aspects of an applicant's suitability to perform the inherent requirements of the role of Police Officer. Thus, the use of health standards at the pre-engagement stage sits alongside other assessments of suitability for the role. This is demonstrated in the figure below.



If health standards are set at a level closely aligned to the capacity to safely and effectively perform the inherent requirements of the role it follows they can and indeed should also be used as a level of medical work fitness to be maintained over time. Thus, a well-defined set of health standards should also be used as a benchmark for periodic health assessment and “for cause” health assessments. These latter assessments are seen as critical to meet ongoing HSWA obligations. The ability of a pre-employment health assessment to assess or predict long term health risk and long-term medical work fitness is poor and would not meet obligations under HSWA.

The focus of the health standard currently is for use at the pre-employment or recruitment phase and during the recruit training course until successful graduation to Probationary Police Constable. The is used to assess health status in terms of capacity to safely and successfully complete Police training and then safely and successfully continue with Police work from a health perspective in the medically foreseeable future.

When undertaking the assessment of health status in the context of medical work fitness for Police work, it is important to consider several specific issues. Firstly, whether the health condition affects capacity to perform any of the inherent tasks of the job of Police Officer. Secondly, whether the condition predisposes to sudden incapacity that impacts upon the safety of self, co-workers, or public. Thirdly whether the nature of the role or the work environment is likely to adversely affect or worsen the health condition. In addition the medium to longer term course or prognosis of any pre-existing condition and the effect this may have on an individual’s functionality is to be considered.

When assessing an applicant, any past history advised by the applicant, either orally or in their initial medical questionnaire, is to be documented and commented on by the Safer People Medical Team.

A candidate’s suitability to undergo NZ Police recruit training will be solely determined by NZ Police by utilising these health standards to assist with an individual health risk assessment process for medical work fitness as a Police recruit and Police Officer.

Where a Safer People Medical Team member determines that at the initial recruitment stage, in accordance with these health standards, an applicant should be referred for specialist advice, the costs associated with the referral are to be borne by the applicant.

Where additional supporting advice is sought, that advice should provide supporting evidence that the applicant is capable of safely undertaking the inherent requirements of NZ Police recruit training and operational duties.

## Inherent Requirements for Police Work - Risk Assessment Approach

This part of the Health Standard sets out inherent requirements of Police Work in New Zealand. It also identifies the health attributes (such as senses, musculoskeletal and cardiovascular capacities) needed to fulfill these inherent requirements. This, in turn, provides the basis for applying the medical criteria which are set out in this health standard.

Police work is safety-critical work. There are considerable potential adverse consequences for life and property if Policing work is not conducted efficiently and safely. The Police Officer remains central and crucial to Policing operations. The interface between the Officer and a variety of different equipment and technology factors also needs to be considered. Thus if equipment changes this may have an impact upon the requirements of the role and any such impact needs to be regularly assessed.

The requirements for Police health assessments are determined by a risk assessment and risk management approach, which aims to:

- Identify the main or inherent tasks of Police work.
- Assess the capacity to perform those tasks.
- Assess the consequences of acute incapacity or impairment.
- Assess the potential impact or consequences of Police work on health status.
- Establish appropriate controls for the risks associated with acute incapacity or impairment, including the role of health assessments.

In determining the health assessment requirements, it is important to take into account the operational and engineering/equipment environment, since the overall risk environment significantly determines the human attributes that are required for safety. As these environments or equipment change, it may be necessary to reconsider or change the health requirements.

Medical criteria cannot be simply set at the highest level for safety's sake. They must be set and applied carefully to match the risks associated with the tasks to be consistent with antidiscrimination laws. As much as possible the standard should be set using available evidence and where evidence is lacking expert opinion and reference to other standards for safety critical work is used. Each risk assessment also needs to be individualised. The acceptable level of risk is defined by the safety critical nature of Police work.

## Inherent Requirements of Police Work

- Safe carriage and use of firearms
- Capacity to perform actions of integrated defensive tactics
- Apprehension of offenders
- Emergency driving under lights and sirens
- Crowd, incident, and traffic control
- Shift work and extended or irregular work hours
- Exposure to significant psychological stressors
- Administrative tasks
- Search and rescue (rugged terrain, heights, water, extreme conditions)
- Specialist areas- STG / SOCO / Eagle helicopter / Dog handler
- AOS, Diplomatic squad.

For each of these tasks:

- (a) information is gained about the environment through the senses (mainly vision and hearing)
- (b) information is then processed by the brain (cognition or 'situational awareness')
- (c) decisions are made that are then put into effect by the musculoskeletal system; the cycle rapidly repeats and is multifaceted.

While physically demanding incidents may be infrequent, they can be intense, critical and even life-threatening. Peak physical demands can reach high levels estimated at 14METS or a VO<sub>2</sub> (oxygen use level) of 49 ml/kg/min. Having the operational functionality to exercise these skills and aptitudes safely is essential to a Police Officer's ability to execute his/her duties. A Police Officer is expected to be in a state of readiness at all times.

## Health attributes

The necessary health attributes for the effective undertaking of Police work flow from a consideration of the inherent requirements. The assessment of medical work fitness for Policing requires consideration of disease states, either latent or known, that can impact on capacity or that can lead to episodic or acute incapacity in relation to those inherent requirements and constituent tasks.

Health attributes for Police work can be described under four main categories – although there is some overlap between them:

- **Senses:** These attributes include vision, balance, and hearing and speech. Problems with vision or hearing rarely cause acute incapacity, apart from Meniere's disease and other causes of vertigo.

However, impairment of vision or hearing may impact on the ability to effectively and safely perform Policing duties.

- **Psychological:** These attributes include attentiveness, cognition and psychological resilience, which may be impaired by psychiatric disorders. An acute anxiety state or psychosis may cause significant impairment or acute incapacity. Some psychological conditions may result in impaired or slow reactions, or inappropriate actions.
  
- **General health:** This attribute refers to conditions that can impact on capacity and/or conditions that may cause acute incapacity or impairment. They include common conditions:
  - cardiovascular disorders such as coronary heart disease or arrhythmias
  - respiratory disease such as asthma or COPD
  - neurological disorders such as epilepsy and stroke
  - diabetes causing risk of hypoglycaemia
  
- **Musculoskeletal:** These attributes refer to locomotor capacities of the limbs and back, coordination of movement, endurance and agility, and so on. An injury such as a dislocation may cause acute incapacity.

These attributes are discussed in more detail in the following sections. The focus is on those conditions more frequently seen. Any rare or unusual condition will be assessed against the level of functional impact based upon the risk assessment considerations above.



## Integrity Obligation on the part of an Applicant

Applicants must declare all current medical conditions, past medical history, use of medications and the need for medical aids at the time of the medical assessment. Relevant medical reports of previous treatment(s), or specialist referrals must be made available to the Safer People Medical Team and be used as part of the medical assessment.

An Applicant's selection is contingent upon the requirement that throughout the recruitment process the Applicant has:

- (a) correctly and fully disclosed all information requested of the Applicant during the pre-employment recruitment process; and
- (b) truthfully and fully answered all questions put to the Applicant by recruitment staff and all others involved in assessing the Applicant's suitability; and
- (c) fully disclosed to all recruitment staff any changes of circumstances that occurred during the recruitment process that have affected or have the potential to affect the Applicant's medical, physical or psychological health; and
- (d) brought to the attention of the recruiting officer any other incident or reason that the Applicant has not already disclosed to recruitment staff (regardless of whether the Applicant has been specifically questioned in such regard) that to the Applicant's knowledge could render the Employee unsuitable to become a member of Police; and
- (e) by signing the agreement, the Applicant declares that they have complied with all the matters set out in paragraphs (a) to (d) above.

## Medical Conditions and Body Systems

### Height, weight and body mass index

There is no minimum height or maximum weight for men or women. In a review of the Physical Competency Test by Otago University, it has been shown that cardio respiratory fitness, upper body strength and weight are important in achieving the required operational competencies. Thus the focus is on capacity and function.

## Hearing

Adequate hearing is a crucial requirement for Police work and has an integral role in the successful execution of many safety critical situations. Speech recognition and comprehension is one of the most critical requirements but overseas Police specific studies have also identified sound localisation, sound detection, and sound recognition as being critical to safe performance of Police work. Importantly all of these aspects of hearing will occur within the midst of a wide range of adverse acoustic environments which includes significant background noise. Importantly, even with entirely normal hearing, as the signal (what you are trying to hear) to noise ratio approaches the same level speech recognition will degrade rapidly. This loss of performance is more prominent with a hearing impairment.

Overseas investigations have estimated background noise levels involved frequently in Police work (crowd noise, traffic noise, sirens) as between 70-80 dBA and thus background noise is a significant factor especially in the urban environment.

Additionally the capacity to hear low volume speech such as whispers is also important in some Police situations. It is estimated that adult whispers are produced at approximately 30 dBA. Thus hearing impairment in the low to mid frequencies will affect capacity for speech recognition at that level.

As a generalisation the vast majority of those with a normal audiogram should have normal function when assessing speech recognition in quiet and speech recognition in noise. The only exception to this are those people with retrocochlear deficits relating to speech comprehension which should be identified at other parts of the recruitment process. Thus a normal audiogram can be assumed to provide confidence in terms of work-related hearing performance.

Thus a normal audiogram- 20dBA or better- at each frequency requires no further investigation. Minor loss at 4kHz or higher is unlikely to interfere greatly with speech recognition and as such at and above 4kHz a level of hearing of 30dBA or better is acceptable without further assessment.

If there is any audiogram abnormality outside of those parameters further assessment should be arranged. The level of impairment of speech recognition does not correlate well with the audiogram changes in the higher frequencies. Thus a speech recognition in quiet test should be arranged. If available a speech recognition in noise test should also be pursued as this has the most functional relevance. A specialist opinion should then be sought as to the cause of the hearing loss, the prognosis, and very importantly the likely functional impact of the loss on speech recognition within the context of significant background noise.

## Hearing aids

Hearing aids can significantly improve hearing in those with hearing impairment. The effectiveness of aids may well be less in noisy environments and with sound localisation tasks. Thus those with hearing aids will need to be assessed again with a focus on functional performance in speech recognition- ideally both in

quiet and in noise. The stability of the aids in terms of fit should be noted by the audiologist or aid technician to assess likely risk of dislodgment in a struggle and whether indwelling aids are required.

## Cochlear implants

Cochlear implants are not fully waterproof. Additionally there is risk of breakage and dislodgement in a struggle. Thus even with adequate hearing function cochlear implants are not currently seen as compatible with Police work.

The Standard is pure tone thresholds:

- less than or equal to 20dB in either ear between 0.5KHz and 3.0KHz; and
- less than or equal to 30db at 4.0Khz.

This can be achieved with indwelling or canal fitting hearing aids but additional testing will be required.

A history of any hearing impairment will require further specialist assessment as above.

At present in NZ a full HINT assessment (hearing in noise testing) is not available and a qualitative assessment only is available. This speech discrimination in noise test can be used to differentiate in borderline cases. As and when a full HINT becomes available this should be incorporated into the assessment of those with any audiologic impairment.

## Vision

Satisfactory visual performance is critical to safe and effective Police work. Vision orientated Police work analysis in overseas studies has identified visual performance as being critical in almost all critical situations within Police work. Various factors including object identification, visual pursuit, motion detection, dynamic far acuity, dark adaptation, peripheral vision, and colour vision are rated as most important.

Police work related visual function frequently occurs in challenging visual environments where even those with normal vision experience degradation of visual performance.

### Far visual acuity

Critical work-related functions relying on far acuity include object recognition which is crucial in a number of different situations including shoot-no shoot decisions. Facial recognition and license plate recognition also rely on far acuity. Far acuity in adverse situations such as night condition degrades significantly such that those with normal 6/6 acuity experience effective acuity of 6/18. Degradation is more prominent in those with impaired acuity.

Similarly studies have shown that performance in object recognition, facial recognition, and license plate recognition follows a predictable pattern of performance whereby there is a significant fall off in performance as visual impairment increases in all visual environments.

Additionally, when considering spectacle use, there is a level of uncorrected visual impairment whereby spectacle recovery after dislodgement is very impaired. Thus there will be thresholds in both corrected and uncorrected visual acuity required.

### Peripheral vision

Peripheral vision has been assessed as critical in a number of situations within Police work. This includes driving, detecting approach of suspects, and operating within crowded environments, and scanning surroundings whilst driving.

Those with monocular vision or a large field defect in one eye have a 7 fold increase in risk for crashes at intersections or with pedestrians. A simulator study has noted increased reaction times to visual stimuli whilst driving in those with field defects despite being allowed to attempt to compensate with head movements.

Thus normal visual fields will be required for safe and effective Police work. If in doubt then formal visual field assessment should be pursued. Monocular status is very likely incompatible with Police work due to the effects on limiting visual fields.

## Colour vision

Colour vision has been noted as important in a number of Police specific situations. The reporting and recognition of colour is frequent in the description of suspects' clothing or vehicles. This includes subsequent evidential reporting which has legal ramifications. Additionally colour vision deficiency has some relevance to driving duties. There is some debate around the level of impact however those with a red perception deficit do have a higher crash rate relating the brake light or red traffic light recognition, especially in the wet, compared to those with normal colour vision.

On average, dichromats (those with only 2 of the 3 normal colour detecting cones) have more difficulty in performing colour-related tasks than anomalous trichromats (where one of the cones is abnormal but present), and protans (those without the red detecting cones) generally have more difficulty driving than deuterans (those without the green detecting cones). Beyond these generalities, there is a wide range of functional capacity among individuals within and between all classification groups. Consequently, the primary focus of colour vision testing is to first screen for colour vision deficiencies before assessing their functional capacity, rather than classifying an individual's specific deficiency.

Thus initial screening should be performed using Ishihara plates and then if any abnormality a further testing protocol should be performed.

## Spectacles and contact lenses

Issues for spectacle use include the risk for dislodgement during a struggle. Overseas studies have identified this a not infrequent occurrence. If this occurs spectacle retrieval is required and thus a level of uncorrected visual acuity is required to assist with this situation. In this situation it is also possible that there may be trauma related visual impairment, even if temporary, and thus an uncorrected visual acuity in the worst eye should not be less than 6/24.

Contact lenses have a much lesser risk of bilateral dislodgement. However lens intolerance is common and there is a high rate of contact lens non-use over time within overseas Police jurisdictions. In those situations, and when predicting future states, it is reasonable therefore that those with routine contact lens use also have a similar threshold in the worse eye of 6/24 uncorrected.

## Corrective refractive surgery

A history of photo refractive keratotomy (PRK), laser insitu keratmyleusis (LASIK) or laser epithelial keratomileusis (LASEK) surgery is acceptable. Regression of correction occurs mostly in the first few weeks post surgery. Those with high myopia and thus greater correction can regress over a longer time period. Thus in most candidates a visual acuity at three months post procedure will be representative. Thus if asymptomatic and meeting visual standards then there is no visual barrier to Police work.

Visual acuity examination is to be conducted as part of the medical examination if applicant declares history of eye sight issue or eye health issue. Otherwise a routine examination by NZP approved Optometrist is completed for all applicants at the final medical (Police paid for).

- Uncorrected acuity is 6/6 in better eye and no worse than 6/24 in worse eye. Uncorrected binocular acuity is 6/6. PASS
- Corrected acuity is 6/6 in better eye and no worse than 6/24 in worse eye and is 6/6 binocular AND uncorrected in worse eye no worse than 6/24. Pass
- Where the above two conditions are NOT met, an optometry assessment can be pursued which documents single eye and binocular acuity both corrected and uncorrected.
- Near vision needs to correct to N10 or better.

Visual fields shall initially be assessed by confrontation. Formal visual field testing shall be performed to quantify any defect detected by confrontation or if the history suggests possible visual field defect.

The criteria for an applicant is not met if an applicant has:

- monocular vision (except amblyopia as peripheral fields are usually intact), any abnormality of visual fields to confrontation, bitemporal or homonymous hemianopia.
- less than 140 degrees of horizontal field or a vertical field of less than +/- 45 degrees above and below the neutral.
- a central or paracentral, relative or absolute scotoma likely to compromise visual performance.

## Colour vision

Colour vision shall initially be assessed with the 24 plate edition of the pseudo- isochromatic Ishihara Test in daylight or artificially illuminated with Illuminant 'D65' (daylight equivalent). Where three or more errors are made on plates 2 to 17, further assessment is required. This shall be by a Farnsworth D15. Other diagnostic testing can be reviewed on a case by case basis.

The criteria for applicants are NOT met if either the:

- Ishihara screening test and Farnsworth D15 is failed, or
- applicant is protan.

## Diplopia, strabismus, other visual abnormality

Any diplopia or strabismus requires a specialist review and report. Any condition with a potential for progressive visual impairment also requires a report with the diagnosis and prognosis clearly outlines.

Further specialist testing such as contrast sensitivity acuity, low light acuity, or glare testing may be pursued if the history is suggestive.



## Cardiovascular System

Certain aspects of Police work involve intense physical exertion. This may include the demands of running whilst under the load of equipment or the more demanding isometric loads involved in lifting and control and restraint activity during a struggle or resisted arrest. Psychological load can also contribute to the risk of an acute adverse cardiac event.

US data identifies cardiac events as accounting for between 7-22% of in line of duty deaths in law enforcement. Data in fire fighters show that those with any established cardiac disease are at particular risk for a cardiac event related to work duties.

There are several factors specific to Police work that act either individually or collectively to increase the risk of a cardiovascular event:

- **Sympathetic activation.** Heart rates rise dramatically following initial despatch and reach near maximal or maximal predicted values during simulated or actual emergencies. Police Officers can go from complete rest to full activity in minutes. Irregular episodes of strenuous activity in normally sedentary individuals are well-known precipitants of acute coronary events, as are periods of high emotional stress.
- **Strenuous activity.** Police duties can entail a high physical workload. Many duties are undertaken with the additional load of personal equipment of up to 12-15 kg, significantly adding to cardiovascular and thermal strain.
- **Oxygen uptake capacity.** Studies estimate that the average required oxygen uptake capacity, as measured by oxygen consumption required for the performance of simulated Police duties, is up to 14 metabolic equivalents (METS)=(VO<sub>2</sub> of 49 ml/kg/min). VO<sub>2</sub> max declines with age, so the stated level is referenced to the following levels of fitness for each age group. Thus many officers will be operating at or close to the maximum of capacity at times. Operating at close to maximum capacity increases the risk of an adverse cardiac event.
  - Age in 30s: a good level for men and good to excellent level for females
  - Age in 40s: good to excellent level for men and excellent to superior for females
  - >50: excellent to superior level for men and superior for females
- **Shift work.** Many studies of various occupations have found an association between shift work and increased risk of cardiovascular disease. The mechanisms are likely to be multifactorial, including psychosocial, behavioural and direct metabolic pathways. Poor dietary habits, sleep disruption and less physical activity may increase the risk of metabolic syndrome. Sleep deprivation or sleep disturbance has been associated with insulin resistance, weight gain, hypertension and cardiovascular disease.

Thus applicants must be assessed as having the cardiovascular capacity to safely undertake the physical components of recruit training and then the demands of Policing work. Future cardiovascular risk is hard to predict but any condition which substantially increases the cardiac risk profile in a predictable fashion needs to be considered (diabetes, established vasculopathy, congenital heart anomaly, cardiomyopathy).

Any history of arrhythmia needs to be assessed due to the potential of sudden incapacity under physical or psychological load. Valvular heart disease also needs to be assessed in terms of impact on cardiac capacity and the risk of future progression as well as the potential for sudden incapacity under physical load such as with aortic stenosis. Elevation of stroke risk (sudden incapacity) associated with valvular disease and arrhythmia also needs to be considered.

Organic disease of the heart or arteries resulting in functional impairment for inherent duties or with a heightened risk of sudden incapacity will likely exclude.

A history of myocardial infarction, stent, or use of a pacemaker or treatment for arrhythmia, not already excluded by organic disease, will require a specialist opinion as to functional capacity to undertake the physical rigours of NZ Police recruit training and operational policing duties as well as an assessment of the risk of episodic or acute incapacity.

High blood pressure or hypertension, unless very high, is not likely to impact on current function but is a risk factor for future cardiac disease, renal disease, and stroke risk. Epidemiological studies show that, similar to the general population, the majority of incident cardiovascular disease events occur in emergency responders (firefighters and police officers) who are initially only prehypertensive or mildly hypertensive. Thus high blood pressure should be appropriately managed on medication with demonstrated good control and with a medication regime that is not judged to result in medication side effects which impact on medical work fitness. Thus blood pressure should be well controlled and stable at acceptance.

Aortic aneurysm needs to be assessed within the context of the potential for high cardiac and physical loading within Police duties. The risk of progression under such load and the risk of enlargement and rupture or dissection need to be considered.

Some applicants with elevated levels of cardiac risk may require referral to a cardiologist to assess risk factors and functional suitability to undertake the rigours of recruit training and operational policing.

An echocardiogram is required for any heart murmurs detected and not previously assessed by a cardiologist to exclude significant valvular disease.

An abnormal ECG or any history of cardiac conditions requires referral to a cardiologist.

Overall the assessment centres around a risk assessment whereby the specific factors for that individual are looked at in terms of risk of an adverse event occurring within a set time frame. This is generally looked at in terms of 5 year risk percentage of an event.

## Respiratory System

Good pulmonary function is essential for the extreme workloads of Police work, which can require a VO<sub>2</sub> max of up to 49L/kg/min. Intense physical exertion such as this typically requires a 10-fold increase in respiratory minute volume, from 4.5 L/min to 45 L/min. An adequate intake of oxygen and rapid exchange of O<sub>2</sub> and CO<sub>2</sub> is required to meet the potential physical demands of Police duties.

Thus any departure from normal lung function may well compromise medical work fitness for Police work. Asthma is a chronic lung disease characterised by the presence of significant variation in lung function and the variable presence of respiratory symptoms (e.g. wheeze, shortness of breath, cough, chest tightness), and may be present or absent at any point in time. Airway hyperresponsiveness is a central feature of asthma and is associated with triggering of symptoms by factors such as exercise, cold air and inhaled irritants. Thus asthma needs to be considered in terms of the stability and reliability of lung function. A comprehensive asthma history is very important in this regard. Very stable and well controlled asthma is thus required without any residual fixed obstruction of significance.

COPD (chronic obstructive pulmonary disease) is a condition characterised by fixed airways obstruction which will result in reduced pulmonary capacity and may well limit exercise capacity. Thus it may impact upon the more physically demanding aspects of Police work. Asthma and COPD can co-exist where there is a fixed obstruction with a superimposed variability in the level of obstruction. The underlying cause for the COPD needs to be considered in terms of possible progression.

Interstitial lung disease affects the capacity for gas exchange as well as making the lungs stiffer and thus renders the lungs less efficient. This impacts upon pulmonary capacity and thus exercise capacity and may prevent performance of the more physically demanding tasks of Police work.

Thus the assessment of respiratory conditions in Police recruits requires an assessment of the degree to which any lung pathology affects exercise capacity or gas exchange capacity and some assessment of whether there is variability or fluctuation of significance due to asthma. A high level of pulmonary health is required.

Applicants must notify recruitment staff if they have ever had asthma (to any degree).

Cystic fibrosis does not necessarily exclude provided the applicant has acceptable respiratory function, no evidence of broader systemic effects, and appropriate physical exercise tolerance. A specialist report will be required.

An applicant with a history of tuberculosis disease will require a specialist report.

A history of recurrent pneumothorax may exclude and requires advice from the treating specialist that the applicant is able to undertake the rigours of NZ Police recruit training and operational police duties.

Sleep apnoea may exclude and further assessment will be required.

## Asthma

Police work does involve some provocative factors for asthma exacerbation. Intense physical exercise can precipitate airways hyper-responsiveness. This is particularly so if there is cold air or there are non specific irritants present such as smoke, chemicals, or OC spray. Thus stability of asthma in situations of non-specific irritants is important to confirm.

An asthma history is important in clarifying the pattern of asthma symptoms including frequency of use of preventer medication, provocative exposures, history of asthma attacks and requirement for oral steroids or hospital admission.

Further assessment of respiratory function may require a spirometry meeting agreed technical and quality standards. Any interstitial disease may require diffusion coefficients as part of lung function testing and exercise testing may be pursued. Non specific bronchial hyper-responsiveness assessment may be pursued such as a saline or mannitol challenge test.

A history of Asthma does not necessarily exclude. However, supporting documentation will be required.

a) *Applicants with history of childhood asthma*

A history of childhood asthma where the applicant no longer exhibits symptoms of asthma and does not use any asthma medication is acceptable provided normal pulmonary function is demonstrated through Spirometry.

b) *Applicants requiring occasional treatment with reliever medication*

Asthma requiring occasional treatment with reliever medication is acceptable provided:

- normal pulmonary function is demonstrated through Spirometry; and
- the applicant provides any relevant information and key features (wheeze, breathlessness with or without a cough) as to how the asthma affects the application;
- the applicant provides a summary detailing asthma history to date and a commentary on the ability to undertake intensive, sustained physical sporting activities;
- further assessment may be required and this may include a bronchial provocation test.

c) *Asthma requiring treatment with preventer and/or symptom controllers*

- Asthma requiring treatment with preventer and/or symptom controllers is acceptable provided:
- normal pulmonary function is demonstrated through Spirometry;

- the applicant provides any relevant information and key features (wheeze, breathlessness with or without a cough) as to how the asthma affects the applicant;
- the applicant provides a summary detailing asthma history to date and a commentary on the ability to undertake intensive, sustained physical sporting activities;
- further assessment may be required.
- the applicant's regular GP provides a written report:
  - outlining the asthma history and current treatment; ~~and~~

d) *Asthma requiring long term ongoing oral steroid treatment*

Asthma requiring long term ongoing oral steroid treatment will exclude.

e) *Exercise induced asthma*

Exercise induced asthma is likely to be acceptable provided the requirements set out above are met and in addition, any written advice (from the applicant's regular GP or respiratory physician) certifies that the applicant is able to exercise to a high without limitation.

If the NZ Police has any concerns regarding the management of the applicant's asthma, they may be referred to a Respiratory Physician for assessment and advice.

## COPD/bronchitis/bronchiectasis

A full respiratory history would be required and a spirometry including pre and post bronchodilator testing would be required. The key assessment is that of the impact upon exercise capacity and the likelihoods of intermittent incapacity including the frequency and speed of onset.

Other respiratory conditions are judged on these same considerations.

## Musculoskeletal

The applicant must be functionally capable of performing all the inherent tasks associated with NZ Police recruit training and operational duties.

The aim of the medical assessment is to ensure the applicant can participate in the practical physical testing that is part of the recruiting process and then engage in all aspects of training and Police work. This section aims to ensure musculo-skeletal function and integrity.

Broadly the applicant must have a full or near full range-of-movement, normal tone, normal coordination and normal power to be able to be cleared. Recurrent joint instability is a factor that also needs to be considered. Regardless of the condition it is the current functional impact and future functional impact relating to the inherent requirements of the role which are the crucial factors to consider.

Musculoskeletal injuries, previous surgery, or other conditions may restrict function or predispose an applicant to exacerbation of the injury or condition during NZ Police recruit training or when performing an operational role. Where there are concerns regarding previous or current injuries/conditions additional supporting evidence may be required. Additional supporting evidence may include specialist reports from surgeons, sports physicians, musculoskeletal physicians, or functional assessments by physiotherapists.

The information required includes details around the current functional impact of the condition. There also needs to be an assessment of prognosis in terms of the likelihoods of predictable progression of the condition and the functional impact of such progression on training and operational tasks. The condition also needs to be assessed in terms of whether there will be deterioration of the condition due to the demands of the training or Police duties.

### Joint instability

Commonly includes shoulder, knee (ligamentous instability or patellar), and ankle. The concerns are those of sudden incapacity as a result of an instability event. Thus the history of the frequency and timing of previous events and degree of provocation required are important. Additionally any presence of post instability joint damage needs to be assessed in terms of functional impact and prognosis. Following corrective surgery a suitable time period is required to establish and document joint stability and to regain functional range of movement and strength. A report detailing these factors will be required.

### Back or neck surgery or chronic/recurrent pain

The reason for surgery and the nature of surgery needs to be clarified. Any residual neurologic deficit or deficit in range of movement and strength needs to be clarified. The prognosis for recurrence or progression of the condition needs to be assessed in terms of impact upon function. In cases of recurrent or chronic

pain a very full assessment is likely to be required to clarify the likely prognosis in terms of functional capacity for the inherent tasks of the role.

## Osteoarthritis (post injury/developmental/degenerative)

Any osteoarthritis needs to be assessed both in terms of the current functional impact on capacity for the inherent requirements of training and Police work but also for the likely prognosis in terms of progression. Issues include pain (impact of medication or sleep disruption), loss of range of movement, loss of strength, and reduced tolerance for sustained activity.

## Inflammatory arthritis/arthropathy

These conditions may follow a relapsing and remitting course. The pattern of disease activity needs to be assessed in terms of functional impact on training and Police duties and the future pattern predicted as far as possible. Any established joint damage also needs to be clarified in terms of functional impact and prognosis. The impact of the medication regime also needs to be considered. The presence or absence of extra-articular manifestations of the condition needs to be clarified. High dose steroids can have behavioural and mood side effects which need to be considered as well as potential impact on bone density if prolonged.

## Joint replacement/arthroplasty

Joint replacement involving the hip and knee will frequently result in a robust level of function. However there are frequently residual limitations and as such these may impact upon the inherent tasks within a Police officer role. Thus a detailed report relevant to the joint involved will be required. Functional assessments may also be required.

Additionally joint replacements are subject to wear and this tends to be more prominent with increased physical loading. Thus the impact of Police work on the longevity of the joint replacement must also be considered. It is possible Police work could result in premature wear and need for revision surgery.

Any other conditions are assessed against the functional requirements to perform the inherent tasks of the role.



## Haemopoietic System

In general terms the haemopoietic system has several functions. This primarily includes oxygen carriage and delivery to the tissues, immune function, and blood clotting. Some conditions may impact upon all three aspects.

Satisfactory oxygen carriage and delivery via the blood stream is integral to an effective exercise tolerance. Police training and operational duties require a potential for maximal physical exertion of a high level (over 14 METS). Thus any blood condition which impacts significantly on this function needs to be assessed. If there is reduced exercise capacity as a result either persistently or intermittently this may prevent safe performance of Police duties.

A blood clotting disorder OR the use of anticoagulant medication needs to be assessed. Police training and operational duties have a risk of physical confrontation and trauma. There is a potentially elevated risk of significant bleeding with clotting disorders following trauma particularly associated with head trauma and intraabdominal injury. Thus the condition or medication use needs to be assessed based upon the risk of significant bleeding risk in the context of work related trauma. Anticoagulant medication use is usually in place for other significant health conditions and thus the effect of these underlying conditions also needs to be considered in terms of functional impact and the risk of sudden incapacity.

Hypercoagulation states or a history of venous thromboembolism may have an impact on function and also the risk of sudden incapacity. Details will need to be clarified.

Disordered immune function may place the applicant at high risk of intercurrent infection impacting adversely on ongoing capacity for duties.

Any haematological condition or immune dysfunction will require a report outlining further details with the above factors in mind.

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## Psychological/Psychiatric Conditions

Police Officers must make critical decisions that can affect others under emergency conditions, often when they are tired or under pressure. The cognitive and decision-making demands are high.

Many of the inherent tasks of Police work require good psychomotor function, which is dependent on complex coordination between the sensory and motor systems. Psychomotor function is influenced by factors such as arousal, perception, learning, memory, attention, concentration, emotion, reflex speed, time estimation, auditory and visual functions, decision making ability and personality. A coordinated behavioural response results from the interaction of complex feedback systems. Anything that interferes with any of these factors may impact adversely on situational awareness and the ability to undertake appropriate and safe actions during an incident, which is often dynamic and sometimes complex.

Psychiatric disorders encompass a range of cognitive, emotional and behavioural disorders, such as depression, schizophrenia, anxiety disorders and personality disorders. They also include dementia and substance abuse disorders. This may also include Neurodiversity or Neurodevelopmental conditions.

Psychiatric disorders may impact on behaviour, cognitive abilities and perception, and therefore impact on the safety of the Police officer and others who rely on them for their own safety. There are, however, considerable differences in the aetiology, symptoms, course and severity of psychiatric disorders, and they may be intermittent or persistent. Impairments differ at different phases of the illness and vary from person to person.

The impact of psychiatric disorders is also influenced by an individual's social circumstances, personality and coping strategies. In most cases, individualised assessment is required to evaluate the pattern of illness, severity and potential impairments, rather than the diagnosis alone.

Additionally an applicant must be able to cope with the psychological stressors of operational duties. Police work involves a number of significant potential psychosocial stressors, including:

- a requirement for coping with shift work or irregular or extended hours
- exposure to traumatic events, work content, and circumstances as an inherent part of the role
- a requirement to cope with physically and verbally aggressive situations with an ongoing and at times unpredictable level of personal risk
- unpredictability in terms of work tasks, load, and demands and the work flow is frequently externally paced with little locus of control for the Police officer.

Some psychiatric, or psychological or Neurodiversity conditions will impact upon resilience or coping strategies for these stressors and increase the risk of a worsening of the overall psychiatric or psychological state.

Thus the potential impact upon function and the potential impact of exposure to work related psychosocial stressors must be taken into account.

A history of the following may exclude until full functional recovery is demonstrated through the assessment process described further in this section:

- major psychological, stress or psychosomatic disorders;
- anxiety or depression;
- post-traumatic reactions;
- serious substance abuse;
- disordered interpersonal relationships;
- impulse control disorders;
- adjustment disorders;
- major mood disorders;
- excessive aggression;
- anorexia nervosa or bulimia;
- attention deficit hyperactive disorder;
- psychotic illness
- recurrence of symptoms
- suicidal ideation or attempt

## Medications and treatment

Some medications prescribed for psychiatric conditions may impair performance of safety critical tasks. This possible impairment needs to be balanced against the deleterious effects of untreated or undertreated illness which can also have adverse impacts upon function. Side effects that warrant consideration can include sedation, agitation, movement disorders, and increased propensity to heat stress (e.g. medications with anticholinergic effects). Medication dose is often important in assessing side effect potential.

Self-reporting, observation, clinical assessment and collateral information should be used to determine if there are any effects of medication that can cause impairment.

Some antipsychotic medications can cause disruption of body temperature regulation. Heat stress associated with intense or sustained physical exertion as part of Police work could increase the risk of neuroleptic malignant syndrome, which is life- threatening.

Medication regimens including stimulants, such as those required for treating attention deficit hyperactivity disorder, are not compatible with emergency response work due to the potential for behavioural impacts. Benzodiazepine use would usually be seen as incompatible with safety critical work.

Consideration of dosing of medication in relation to shift and on-call work is also required.

Electroconvulsive therapy may cause cognitive impairment – notably, memory dysfunction.

## Assessing Applicants

The final decisions rest with NZ Police.

There are a number of factors that must be taken into account when assessing an applicant who has a mental health disorder history; this includes who assessed the person and made the diagnosis, the clinical diagnosis, the prescribed medication and/or therapy, the duration of treatment, pattern of recurrence or persistence of symptoms; severity of symptoms and functional impact; the individual circumstances in which a mental health disorder was a consequence. The potential impact upon functional capacity and resilience for Police duties and the risks of recurrence must also be considered.

If history suggests that symptoms of depression have persisted for 2 years or more, then the likelihood of relapse or persistence is significantly increased and resilience for Police work is likely to be adversely affected. A history of 2 or more episodes of correctly diagnosed depression is also associated with a high risk of recurrence. The risk increases as the number of episodes increase. These circumstances would lead to a likely decline on medical grounds.

In historical cases a personal narrative and GP/psychology reports are used to assess risk. In all other instances a written report is required from an approved senior clinical Psychologist or NZ Vocational Registered Psychiatrist certifying that the applicant has returned to their premorbid level of function i.e. their previous functional role in society.

This will include identifying the type of medication and/or therapy; how long the applicant required treatment; duration of symptoms; impact on function; how long the applicant has been off the medication/therapy and certifying that the applicant is capable of coping with the psychological stressors of operational duties in the professional opinion of the psychiatrist/psychologist.

A stand down period may be imposed to ensure the person is free of symptoms and recurrence and off medical treatment that may adversely affect their ability to complete the functional requirements of the role. The length of this period will be determined by NZP.

The costs associated with this assessment and report/s will be the responsibility of the applicant in line with current requirements for physical assessments.

## Skin Conditions

The primary issue for skin conditions is that of the barrier function of skin. Ineffective barrier function of the skin in exposed areas increases the risk of infection due to blood or body fluid exposure. Such exposure is a definite risk during Police work including defensive tactics and first aid in particular. Thus the risks of reduced barrier function of skin needs to be assessed.

Skin conditions secondary to systemic disease are assessed on the basis of the underlying systemic condition as well as the specific functional impact of the skin component. Thus the impact of the systemic condition and/or treatment on capacity to perform the inherent tasks of Police work will also be assessed.

Some skin conditions impact upon ability to tolerate skin abrasion or pressure (lifting, gripping, defensive tactics) and will be assessed according to impact on function.

Other potential impact of skin conditions could include scarring with associated loss of joint range of movement and function. Severe loss of sweating capacity due to widespread scarring may have implications for the risk of heat stress during physical exertion in hot environments.

Each case must be considered on its merits and a specialist dermatologist opinion and report may be required. The crucial aspect of the assessment is that of the impact on function within the inherent requirements of the role of Police officer.

A history of skin cancer will be assessed on the effect on function due to the local or systemic effects of the treatment or cancer itself. Prognosis may also be considered where there is a risk of functionally limiting recurrence.

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## Genitourinary System

This includes any disease of the kidneys, ureters, bladder, prostate, uterus, ovaries, testes, urethra, and genitalia.

### Renal/kidney disease

Chronic renal impairment is associated with increased cardiovascular risk. This is important given the requirement for intense physical exertion required in Police work (over 14 METS). Albuminuria and reduced eGFR are the strongest predictors of progression to end-stage renal failure and predictors for adverse events including stroke, myocardial infarction, and congestive heart failure, and death.

Thus chronic renal impairment requires a specialist report outlining the underlying cause of the renal impairment, degree of impairment, progression or stability, and prognosis as well as any treatment.

Haematuria and/or proteinuria requires investigation to establish the cause.

### Renal transplant or dialysis

Other conditions require an assessment of the impact upon function for Police duties as well as an assessment as to prognosis and any possible increase in the risk of sudden incapacity. Any ongoing treatment or medication needs assessment based on the same factors. This includes conditions such as endometriosis or chronic pelvic pain.

### Diabetes

Conditions of Police work have the potential to impact on glycaemic control for those with diabetes. Diabetes may affect a Police officer's ability to safely and effectively perform policing duties, either through impairment or loss of consciousness during a hypoglycaemic episode, or from end-organ effects on relevant functions, including retinopathy, cardiovascular disease, nephropathy and peripheral neuropathy. In people with type 2 diabetes, sleep apnoea is also more common.

Symptoms such as lack of concentration or change of behaviour resulting from hypoglycaemia can impact on situational awareness. Hypoglycaemia in an operational situation, including driving vehicles under emergency conditions, presents a considerable risk and may impact on the safety of the individual officer, co-workers, and members of the public. Hypoglycaemia may result in confusion and impaired judgement, and impaired motor control, thus impacting on the effective and safe performance of policing duties. It may also be more difficult for a Police officer and for others (such as colleagues who know about the condition) to recognise symptoms or signs of hypoglycaemia in an emergency environment as the effects of adrenalin are very similar to early signs of hypoglycaemia.

The risk of hypoglycaemia is greatest in those treated with insulin. There is still a risk, albeit lower, associated with treatment with sulfonylureas and secretagogues. There should be a very low risk of severe hypoglycaemia for those treated with diet alone, or with added metformin, acarbose or thiazolidinediones. Gliptins and SGLT2 transporters also have a low propensity for hypoglycaemia. For those treated with insulin, the risk is higher for those with Type 1 diabetes than those with Type 2 diabetes; however, hypoglycaemia is increasingly reported in insulin-treated Type 2 diabetes and with sufficient frequency to cause significant morbidity.

Lifestyle factors, such as alcohol intake, can also increase the risk of hypoglycaemia.

Lack of hypoglycaemic awareness significantly increases the risk of severe hypoglycaemia. Lack of hypoglycaemic awareness is more common in people treated with insulin for more than 10 years. In turn episodes of hypoglycaemia increase the risk of hypoglycaemic unawareness.

Police work has a number of features that also contribute to a higher risk of hypoglycaemia and a risk of more adverse outcome from hypoglycaemia as discussed above. The emergency response nature of policing duties can involve intense physical activity at unpredictable, irregular times, and for unpredictable periods. Unpredictable energy demands can adversely affect glycaemic control. Regular meal schedules are often interrupted and regular monitoring of blood glucose can be difficult. Shift work also complicates diabetic control. Common causes of hypoglycaemia are delaying or missing a meal, not eating enough carbohydrates, unplanned physical activity and more strenuous exercise than usual. These factors occur in the policing environment and, therefore, the conditions of Police work increase the likelihood of hypoglycaemia over and above that seen generally.

Further complicating the picture is that those individuals with diabetes with very good or tight glycaemic control have a higher risk of hypoglycaemia. Insulin pumps provide tighter control but do not reduce the risk of hypoglycaemic episodes. If control is relaxed to reduce the risk of hypoglycaemia this then increases the risk of developing the range of diabetic complications that also impact upon medical work fitness in a safety critical role. Thus there are a number of serious issues to consider with diabetes within a safety critical role such as Police work.

Type 1 diabetes mellitus requires insulin treatment and is likely to exclude an applicant. Any possible exceptions to this will require further extensive assessment and a comprehensive report from an endocrinologist.

Type 2 diabetes mellitus requiring oral hypoglycaemic medication may exclude and is likely to exclude if requiring insulin as noted for Type 1 diabetes.

Applicants with Type 2 diabetes mellitus on no drug treatment or on non-insulin treatment must provide a detailed written report from their treating doctor which includes details on the following:

- confirmation of satisfactory glycaemic control
- previous and current medication regime
- confirmation of absence of severe hypoglycaemia or details of any events(i.e. hypoglycaemia that results in impaired level of consciousness)
- confirm the presence of hypoglycaemic awareness
- confirmation of absence of complications that impact on medical fitness for policing duties.

## Other endocrine disorders

Well managed Thyroid disorders are acceptable. Supporting information from the applicant's regular GP advising that the condition is well managed, identifying any medication and enclosing recent pathology results is required.

Other endocrine disorders should be identified and further detail sought with a view to assessing impact upon function, risk of incapacity and prognosis.

*Ref- medical aspects of fitness to drive NZTA Waka Kotahi 2014*



## Ear, Nose, and Throat Conditions

### Vertigo

Many tasks undertaken by Police Officers require good balance. In addition, a lack of balance may lead to serious injury during the course of duty. Situations include working at heights, working in awkward spaces and in awkward positions, stooping, looking overhead, and negotiating uneven and slippery surfaces, and stability during defensive tactics. Loss of balance causing acute incapacity in an operational situation jeopardises the safety of the individual officer, their colleagues, and members of the public.

A number of conditions may affect balance, including diseases of the vestibular system, abnormal proprioception or disorders of the central nervous system, particularly of the extra-pyramidal system and cerebellum. Many of these will have stable impairment which is assessed against the capacity for performance of the inherent requirements of the role.

Of most significance are recurrent vestibular conditions that can result in sudden, unheralded attacks of vertigo. Some vestibular disorders also affect hearing.

An applicant who suffers unheralded attacks of vertigo is not medically fit to safely perform Police work. Vestibular disorders may change between the asymptomatic and symptomatic state with little warning. The subsequent vestibular dysfunction can occur suddenly and result in acute incapacity.

### Meniere's disease

Meniere's disease often results in recurrent vertigo despite treatment. The timing and frequency of the attacks vary. Some individuals can regularly predict when they will have an attack. Others note a completely random pattern. One in 25 people with Meniere's disease also experience drop attacks – sudden falls without loss of consciousness. The natural history is one of progression in the affected ear associated with increasing hearing loss. In extreme cases, total loss of vestibular function and partial loss of cochlear function can occur in the affected ear. Attacks are often heralded by a sense of fullness in the affected ear; however, quick egress from emergency or hostile environments is not always practicable. Meniere's disease may not be compatible with operational duties in the long run.

### Benign paroxysmal positional vertigo

Symptoms of benign paroxysmal positional vertigo (BPPV) are typically triggered by changing head position, lying down, turning over in bed and sitting up from lying, and by stooping or extending the neck to look up. Given the unpredictable and emergency nature of Police duties, which may require frequent variation of posture, symptoms of BPPV may be precipitated by Police duties and a significant symptom-free period would be required with a specialist report commenting on risks of recurrence.

## Central causes

Given the increased risk in those with underlying cardiovascular disease of precipitation of acute cardiovascular events with the requirement for intense physical exertion as part of Police duties, the clinical history should be considered carefully, and the possibility of a cerebrovascular cause for vertigo or other balance problems may need to be considered if clinically appropriate. Note that cerebellar infarction is the main differential diagnosis for vestibular neuritis. This would be assessed as for a CVA with residual neurological deficit.

## Acute peripheral vestibulopathy – vestibular neuritis and labyrinthitis

Vestibular neuritis and labyrinthitis are thought to result mostly from viral infections. Generally, they are self-limiting conditions; however, symptoms such as vertigo may become persistent in some individuals. Where symptoms persist this may affect capacity for Police work. A case by case assessment would be required.

## Ear infection or trauma

These issues will be largely assessed based on the potential impact upon hearing and vestibular function. If hearing standards are met and no vertigo exists then in most cases there should be no limitation.

## Gastrointestinal/Alimentary System

Gastrointestinal system conditions are considered on a case-by-case basis. They are assessed according to the functional impact on capacity to perform the inherent requirements of Police work. The risk of sudden incapacity also needs to be assessed for each condition. A report will usually be required to clarify details.

There are a wide range of potential conditions which may cause symptoms and affect capacity for Police work. Symptoms may be persistent but can frequently be episodic. Frequency and severity of symptoms is usually important in assessing effect on function. Symptoms or signs of functional importance may include, nausea, vomiting, gastro-oesophageal reflux, abdominal pain, diarrhoea, GI bleeding, malabsorption, abdominal wall herniation, presence of a stoma, pancreatic or liver dysfunction, gallbladder disease, previous splenectomy.

Liver disease can have systemic impact including clotting dysfunction, widespread oedema, malabsorption with diarrhoea, and jaundice. Thus details of liver disease will need to be obtained to assess the impact on function for Police work as well as prognosis and secondary factors such as risks of bleeding with trauma. This includes applicants with Hepatitis B or C positive status as below.

Inflammatory bowel disease (IBD) may be well controlled on medication although can cause persistent or episodic incapacity related to pain, bleeding, diarrhoea, and malabsorption. A history of the pattern of symptoms, recurrence and control, medication regime, as well as general conditioning needs to be obtained. IBD can be associated with other systems inflammatory pathology so this should be clarified. IBD is sometimes managed with surgery and if so the effect of this on symptoms and function needs to be assessed.

Irritable Bowel Syndrome (IBS) is non inflammatory but in severe cases can be debilitating due to abdominal pain, bloating, nausea, and diarrhoea. Thus a similar history of symptomatic pattern and functional impact needs to be obtained. Psychosocial stress can be a potent aggravating factor for IBS so the potential impact of Police work on the condition needs to be established.

Applicants must be free from inguinal hernia or from any other symptomatic or functionally limiting abdominal wall herniation. There needs to be unlimited capacity for intense physical exertion. If there has been surgical correction within six months, a report from the treating surgeon or GP confirming an uncomplicated surgical outcome and suitability to undertake the physical activities involved in recruit training is required.

Current treatment for gastro-oesophageal reflux disease does not exclude, but will need a medical report.

Splenectomy does not exclude but the applicant must provide evidence of vaccination with pneumococcal, meningococcal (quadrivalent), varicella and influenza vaccine.

Hepatitis B and Hepatitis C Positive applicants will be considered on a case-by-case basis; these conditions do not necessarily exclude. The applicant must provide recent Liver function tests, viral loads, serology, and specialist review.

## Neurological Conditions

The ability to effectively and safely undertake the inherent requirements of Police duties relies on a number of intact neurological functions. Police officers are required to have an awareness of what is happening in their environment and understand what that information means (situational awareness). They make decisions and act under circumstances of time pressure where the consequences of the decisions can impact on personal and public safety and property.

The following functions are required for operational duties to be undertaken effectively and safely:

- visuospatial perception
- insight
- judgement
- attention and concentration
- reaction time
- memory
- sensation
- muscle power (also refer to Musculoskeletal disorder)
- coordination
- balance and vertigo (also refer to Vestibular disorders)
- vision (also refer to Vision and eye disorders).

Loss of consciousness, seizure, states of confusion, cognitive impairment, impairment of muscular power and coordination impact on the ability to effectively and safely undertake operational duties, including the ability to drive Police vehicles in emergency mode and safely engage in defensive tactics. Such impairments can jeopardise the safety of the individual officer, their work colleagues, and members of the public.

In addition, the risk of precipitating some neurological events is increased because of the conditions and circumstances under which Police duties are undertaken:

- Shift work, sleep disruption and sleep deprivation can lower seizure threshold, thus precipitating a seizure in an individual at risk of seizures.
- The cardiovascular stressors of Police work include intermittent intense physical strain and this may precipitate an ischaemic or haemorrhagic cerebrovascular accident in an officer with established cerebrovascular disease or severe hypertension.

Neurological conditions may result in stable deficits which can be assessed against the demands of the inherent requirements of the role of Police officer. There may be a risk of recurrent events and this risk needs to be assessed in terms of the likelihood of the event occurring, the extent to which an event impairs function, and the potential impact such an event may have within the context of Police duties.

## Seizures-epilepsy- blackouts

Epilepsy is characterised by the tendency to experience recurrent seizures. It is defined by two or more unprovoked seizures. Not all seizures constitute a diagnosis of epilepsy.

Epilepsy is a common disorder, with a cumulative incidence in the population of 2%, and 0.5% of the population affected and taking medication at any one time. Even with treatment, approximately 20% of those with epilepsy continue to experience seizures.

The major issue with seizures or blackouts is that of the loss of awareness and/or loss of consciousness. This is not compatible with safety critical work and there are many circumstances within the inherent tasks of Police work where such impairment would have very serious adverse consequences. This includes driving and traffic duties, work at heights, other rescue work including in water, defensive tactics, and a range of other situations.

Road crash data confirms elevated rates of crash involvement in those taking epilepsy medication. The requirement for emergency driving at speed as part of the inherent requirements for Police work further adds concern for the elevated risks and thus the risks of an adverse outcome are substantially higher than for private driving. Additional risks occur due to the range of other duties and situation where sudden incapacity could have dire adverse outcomes for the Police officer, work colleagues, or public.

Recurrent seizure risk is highest in the weeks and months following a previous seizure with a reducing risk over time. Thus in general terms the longer the time period without a seizure the risk of another seizure declines. The level of acceptable risk or recurrent seizure in an occupational setting will depend upon the nature of the role being performed and is dependent on the proportion of time spent on safety critical duties and the potential severity of any potential adverse outcome.

There are various levels of seizure free time periods outlined in a range of safety critical jurisdictions. NZTA suggests that those with a seizure history are usually seen as permanently unfit for class 2-5 driving with a possible exception made after 5 years being seizure free. The Australian medical standard for rail safety workers outlines a 10 year default seizure free standdown period. Fire and Rescue New South Wales also outline a default position of 10 years. Both reduce to 5 years for a first seizure with normal EEG. There is further scope for a 12 month seizure free period for a single provoked seizure where the cause is transient and resolved. FENZ has a default position of 5 years seizure free off medication with a similar reduction in time period for a single provoked seizure.

Complications arise when making a determination about risk as it relates to those with appropriate seizure free periods whilst still on medication. Those with a diagnosis of epilepsy (a diagnosis which requires a history of 2 seizures) are more likely to have a recurrent seizure if off medication. Conversely a dose reduction or missing doses also elevates the risk of a seizure event. Recruit acceptance whilst on medication

predicates a high level of confidence regarding ongoing medication effectiveness and regime compliance over a long period. Given the potentially aggravating effects of Police duties (shifts) and given the high proportion of time engaging in duties with high potential for seriously adverse outcome as a result of a seizure a five year seizure free period off medication is recommended.

A history of any type of blackout or loss of consciousness of uncertain cause should be treated in the same manner as seizures. If a cause is confidently identified and corrected, or will not recur, then as long as the underlying cause does not affect fitness for work there should no barrier. A specialist report will be required.

A history of childhood seizures or febrile convulsions with no seizures after the age of 11 are seen as fit to proceed.

## Head injury

Mild and moderate head injury should not exclude as long as the applicant has fully recovered and the recovery was not prolonged, with no residual issues with focal neurology, cognitive impairment, fatigue, and exercise tolerance.

Severe head injury is assessed similarly with the potential impact of neurologic deficit, cognitive impairment, fatigue, and exercise tolerance all features to explore. Severe head injury also carries with it an increased risk of post traumatic seizures.

PTE is a recurrent seizure disorder secondary to brain injury following head trauma. It is a nonhomogeneous condition and its onset may be several years after the head injury. It should be distinguished, however, from immediate posttraumatic (acute symptomatic) seizures that occur within 24 hours of a head injury, which are considered part of the acute head injury process. Seizures that occur within one week after injury are termed early posttraumatic seizures and seizures occurring more than one week after injury are termed late posttraumatic seizures. The risk of having a second seizure, however, is high, with one population-based study showing 86% of individuals progressing to a second seizure within two years of the first.

The risk of PTE increases with the severity of the traumatic brain injury. Risk factors for late posttraumatic seizures after traumatic brain injury include:

- early posttraumatic seizures (from 24 hours to 1 week after the trauma)
- penetrating brain injury
- brain contusion
- subdural haematoma/surgery for subdural haematoma
- depressed skull fractures
- loss of consciousness/alteration of consciousness or posttraumatic amnesia greater than 24 hours
- age older than 65 at time of injury.

After severe traumatic brain injury, the risk remains elevated for more than 10 years after the injury; however, the risk reduces with time.

If no seizure has occurred by 12 months post severe head injury the risk of seizures, whilst still elevated has reduced significantly. Thus a 12 month stand down following head injury with seizure risk factors is required. If a seizure does occur then treat as for seizures above.

A history of supratentorial intracranial surgery and that requiring retraction of the cerebral hemispheres also requires a 12 month seizure free period post surgery as well as an assessment regarding possible residual neurologic deficits.

## Migraine and cluster headache

Migraine headaches vary greatly in frequency and severity. Additionally the nature of the migraine aura can vary between individuals and can change over time in one individual. Migraine aura frequently involves visual disturbance of sudden onset and this is often such that there would be impairment in capacity to safely perform Police duties. Additionally focal weakness is also sometimes experienced.

The headache itself can be associated with severe pain and frequently can be associated with nausea or vomiting and marked light sensitivity. These effects are often such that the headache component will be debilitating.

Thus a migraine history needs to be carefully assessed regarding the frequency, nature of the initial neurological deficits, and the severity in terms of functional impact. A report would be required to clarify those points.

Thus a history of frequent or severe migraine with functional impact on capacity for Police duties may prevent safe performance of Police work.

## Aneurysm or cerebral vascular malformation

There are two main issues of concern. The first is the risk of intracranial bleed. This risk needs to be considered bearing in mind the requirement for intense physical exertion required in parts of the inherent requirements of Police work including heavy lifting.

The second issue is that of seizure risk either due to the malformation itself, from a previous bleed, or from the surgical intervention to address the pathology.



Any neurological deficit also needs to be assessed, if present. A specialist report will be required specifically looking at the risks above.

## CVA/Stroke

Ischaemic stroke (atherosclerotic or embolic) stratifies an individual into a very high cardiovascular risk group (i.e. >20% 5-year risk of an acute cardiovascular event). Such high cardiovascular risk in the context of an overt cardiovascular event is incompatible with undertaking the inherent requirements of Police work.

The most common cause for haemorrhagic stroke is sustained or transient elevation of blood pressure. Regardless of level of recovery the potential cardiovascular strain of Police work and the associated increases in blood pressure would increase the risk of recurrent stroke.

In unusual cases (e.g. embolic stroke from patent foramen ovale, which is subsequently closed percutaneously) where there is a robust level of functional recovery and recurrence is considered unlikely this may not exclude Police work.

If the CVA was associated with a seizure, seizure and epilepsy standards also apply.

## Transient ischaemic attacks (TIAs)

TIA can be single or recurrent, and may be followed by a stroke. The risk of stroke can be as high as 15% at 90 days post-TIA. Up to 85% of strokes that follow TIA will be fatal or disabling. In the majority of cases, individuals who have suffered a TIA would be stratified into a very high cardiovascular risk group (i.e. >20% 5-year risk of an acute cardiovascular event). Such high cardiovascular risk in the context of an overt cardiovascular event is generally incompatible with undertaking the inherent requirements of Police work safely however each case must be assessed individually with regard to any underlying cause of the TIA, cardiovascular risk factors and likelihood of recurrence. Assessments of these cases are likely to be complex and require the input of an appropriate specialist.

## Other Conditions

Other neurologic conditions will all be assessed individually looking at the impact upon function as it relates to the inherent requirements of the role of Police Officer. Issues such as progression, recurrence, and fluctuation in function need to be addressed.

### Sleep disorders

Sleep apnoea is of significance for Police work as it may result in:

- sleepiness or daytime somnolence and fatigue, with increased risk of injury, accidents and falling asleep while driving (including to and from work)
- impaired cognition and analytical skills, resulting in poor decision making.

Also of significance for Police work are the long-term health effects of sleep apnoea, including:

- hypertension
- coronary artery disease. Multiple episodes of low oxygen from apnoeas can also lead to sudden death from a cardiac event if there is underlying heart disease. Obstructive sleep apnoea has also been shown to be associated with atrial fibrillation and congestive cardiac failure
- stroke risk.

Sleep apnoea may also worsen pre-existing conditions such as hypertension and depression. Sleep apnoea is associated with Type 2 diabetes. Also, shift work may compound the effects of poor-quality sleep from sleep apnoea.

Any history of sleep apnoea will require a specialist report. This will need to outline the severity of the condition, the effectiveness of treatment and compliance with treatment, and also confirm the lack of functional impact in terms of excessive sleepiness.

Other sleep disorders will be assessed also looking at the functional impact and the potential for Police work to aggravate the condition or worsen fatigue on the basis of shift work or irregular work hours. A specialist report will be required.

### Malignant disease

Each case will be considered on its merits. The functional capacity of the applicant to perform the inherent requirements of the role of Police officer will determine suitability. This will include any functional impact of the disease itself, the impact of any treatment undertaken, and also the prognosis for progression and the impact that this may have on all aspects of function.

## Medication

Medication has the potential to cause side effects. If these side effects impact on any functional capacity relating to Police work it may increase the risks to the individual, work colleagues, and the public. Sedation, sensory or motor disturbance, or cognitive impairment are areas of concern. There is a potential for interactions between medications to cause or enhance other adverse effects.

Thus prescribed and over the counter medication including vitamins, herbal presentations, and alternative and complimentary medicines taken by an applicant should be declared and reviewed by the NZ Police medical advisor. If it is not clear why an applicant is taking prescribed medication, report form GP sought from the applicant's prescribing doctor.

Individuals taking immunosuppressive medication will be assessed on an individual basis.

## APPENDIX 1

### Comments on TOG

#### Inherent requirements of technical operative

Capacity for safe carriage and use of firearms.

- Capacity to train and perform actions of integrated defensive tactics.
- Extended or irregular work hours.
- Ability to mobilise effectively in/under/around buildings, vehicles, outdoor terrain.
- Work at heights.
- Decision making and analysis under pressure of covert but controlled and planned activity.
- Manual handling and dexterity for lifting equipment and technical tasks.
- Capacity to maintain PCT readiness.

Does NOT involve.

- Engaging with, pursuing, or apprehending suspects/offenders.
- Exposure to incidents, crime scenes, or content involving trauma.
- Driving under lights and sirens.
- Search and rescue or emergency response.

#### Hearing

Speech recognition remains important for communication during TOG duties but there is a lesser requirement for hearing in significant background noise. Additionally hearing is unlikely to be required for threat detection and sound localisation. Thus speech discrimination in quiet is the key element and additionally concerns regarding hearing aids are less given reduced risk of dislodgement and reduced need to sound localisation and performance in background noise. A level of hearing for the technical components of the role is required.

#### Vision

Vision needs to be adequate for the technical components of the role. Vision also needs to be sufficient to allow the completion of defensive tactics training to a satisfactory level. The colour vision requirements for the TOG role would be those limited to the technical role. There would be less concern regarding the possibility of dislodgment of corrective lenses in a TOG role.

## Psychological aspects

The range of stressors within TOG work is less extensive compared to Police work generally. There is a requirement to manage irregular or extended work hours. There is a requirement for covert work with the potential risk of exposure during covert activity albeit within a planned operation with cover and mitigation in place. There is not the same exposure to potentially distressing content, scenes, conflict, or frequent personal threat.

## APPENDIX 2

### References/Bibliography

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