The New Zealand Laboratory Schedule and Test Guidelines: **Anatomic Pathology Tests**

The New Zealand Laboratory Schedule provides clinicians with consistent guidance when considering requesting laboratory tests. It will ensure the uniform availability of tests across District Health Boards (DHBs) in the future. Tests are divided into Tier 1, which all referrers can order, and Tier 2, meaning that the test must be ordered in conjunction with another health professional with a particular area of expertise. In addition, clinical guidance is provided on the use of some tests. In this article, with the assistance of Dr Cynric Temple-Camp (Chair of the Laboratory Schedule Anatomic Pathology subgroup), we focus on the anatomic pathology tests in the Schedule.

For further information on the New Zealand Laboratory Schedule see: **www.dhbsharedservices.health.nz/Site/Laboratory/Laboratory-Schedule-Review-Project.aspx**

Anatomic pathology comprises histology and cytology

The information about anatomic pathology tests in the Laboratory Schedule is divided into two sections:

- Histology
- Cytology – further divided into gynaecological and non-gynaecological sections

As in other specialities, the histology and cytology tests are defined as Tier 1 (all referrers can request) and Tier 2 (specialist guidance is required) in the Laboratory Schedule.

Histology testing

Tier 1 tests for histology include the majority of specimens clinicians send for histological examination. In primary care this predominantly consists of shave, punch, incisional and excision biopsies of superficial soft tissue lesions of the skin. Specimens may therefore include: tissue from the biopsy or excision of basal or squamous cell carcinomas, pigmented naevi, lipomas and sebaceous cysts as clinically indicated.

The Laboratory Schedule also defines a number of activities as Tier 1 tests that are not directly diagnostic but that are

important at the clinical-pathology interface. These include the presentation of pathology at multidisciplinary meetings, referral of material for a second opinion and the increasingly common process of returning tissue specimens to patients.

Tier 2 tests for histological examination are usually requested from a hospital setting and include larger surgical specimens such as breast tissue from mastectomies, and specialist biopsies from lesions in organs such as kidney, lung, bone or brain, often collected intra-operatively.

In some circumstances, usually in a secondary care setting, additional Tier 2 tests are requested by the pathologist providing the initial diagnostic work-up of a specimen. There are many hundreds of immunohistochemical antibody tests available that have a wide variety of applications. The selection of these studies in addition to standard histology can, for example, enable the diagnosis of a tumour's histogenesis and therefore assist in tumour identification. These additional tests may also be important for prognosis and to guide future treatment, e.g. the identification of the endocrine status of a breast tumour by detecting oestrogen, progesterone and HER2 receptors.

Cytology testing

Tier 1 tests for cytology include both gynaecological and non-gynaecological cytology. Tests can be requested by any registered medical practitioner as well as other relevant practitioners, such as midwives and cervical smear takers.

Tier 1 tests for gynaecological cytology include conventional and liquid based cytology (LBC). In the New Zealand context, tests for cervical, vaginal and vulval cytology now predominantly utilise LBC. The schedule also includes HPV PCR testing as a Tier 1 test as defined by the requirements of the National Cervical Screening Programme.

Non-gynaecological examples of Tier 1 tests requested in general practice include the assessment of sputum and urine samples. Aspirates from cysts or other lesions, and material from fine needle aspiration (FNA), sent for routine cytology are also included as Tier 1 tests.

Tier 2 tests for cytology include material from investigations requiring more specialised collection techniques, usually in a secondary care setting, such as bronchial washings, bronchiolar alveolar lavages and those collected during operative procedures.

No specific additional guidance has been developed for anatomic pathology testing

There are no specific referral guidelines for anatomic pathology in the Laboratory Schedule. All tissue and aspirated fluid recovered by a medical procedure should ideally be submitted for examination. However, in practice, there are a number of exceptions to this, although these are of more relevance in a secondary care setting. Tissues that are not usually submitted for testing include tonsils, hernia and hydrocele sacs, femoral heads from patients undergoing hip joint replacement and placentas from women who have normal vaginal deliveries at term. The Laboratory Schedule therefore makes no recommendation to clinicians over which tissues or fluids not to submit, but leaves this as a clinical judgement.

Future planning

In the future, molecular diagnostic testing in anatomic pathology will become increasingly important and the selection of these tests will become a critical part of clinical management. Molecular pathology is a multi-disciplinary field encompassing aspects of anatomic and clinical pathology, molecular biology, biochemistry and genetics. It is a growing field utilising diagnostic tests such as polymerase chain reaction (PCR), fluorescence in situ hybridisation (FISH) and gene mutation testing. There is increasing use of molecular testing in patients with cancer and the results are useful in both diagnosis and selection of treatments. Molecular tests are not performed in all laboratories and are only available at some local, national and international specialised centres. The selection of molecular tests is usually made by a secondary care clinician or pathologist and therefore these tests are likely to be Tier 2, however, this will depend on local availability and whether or not they are funded.

The Laboratory Schedule leaves the introduction of future molecular testing open, however, tests will have to meet the criteria of appropriate clinical relevance as well as cost effectiveness. The Schedule provides a background basis on which current and future evidence-based spending on pathological testing can be developed.

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