# Intelligence, Surveillance and Knowledge Group capacity and capability review

A high-level review for the Public Health Agency

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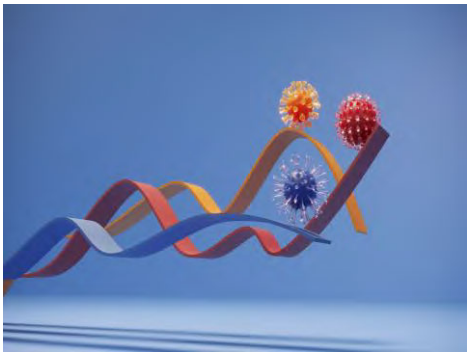

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# Glossary

| Abbreviation | Stands for |
|---|---|
| ESR | The Institute of Environmental Science and Research |
| ERI | Evidence, Research and Innovation directorate |
| ISK | Intelligence, Surveillance and Knowledge |
| NPHS | National Public Health Service |
| ODPH | Office of the Director for Public Health |
| PHA | Public Health Agency |
| PHKSS | Public Health Knowledge and Surveillance System |
| PHU | Public Health Unit |
| SME | Subject Matter Expert |
| TAG | Technical Advisory Group |

# Executive summary

The Public Health Agency (PHA) engaged us to conduct a capability and capacity review of its Intelligence, Surveillance, and Knowledge (ISK) Group. The functions served by this group will be crucial to ensure the success of a reformed health system focussed on public health, with public health presenting "one of the largest opportunities to address health inequities and reduce the future health burden of the population."[1]

## Our review

In this report, we set out our findings and recommendations for the key capabilities we th nk a e required for the PHA to fulfil its new role and suggest a high-level structure for the group in line with our findings.

To understand the expectations of the ISK group and the capabilities and capacity needed, we reviewed a number of available background and establishment documents conducted several interviews with stakeholders across the PHA, wider Ministry and other agencies, reviewed the current organisational structure and tested findings with key informan s.

We found that there is an expectation among stakeholde s fo the ISK group to be the thought leader for intelligence, surveillance and knowledge across the new system. However, stakeholders are also concerned about duplication. We heard that the ISK group was assembled from various teams and individuals in the pre-reform Ministry. Many expressed he desire for greater clarity on the role of the ISK group within the new system – something we expect is likely to be common across the new system as new ways of working and relat onships embed.

In our view, strong leadership and elational skills will be crucial to lead the group through these early stages of the reform, S9(2)(g)(i) [redacted], and start to build the credibility of the group as the thought leader.

It is important to note, since the ISK group is part of a broader public health surveillance and intelligence eco-system its capacity and capability requirements are not only determined by its work programme, but also by the work programmes of other related groups and organisations (e.g., the National Pub ic Hea th Service and Te Aka Whai Ora). As with the ISK group, these other groups and organisations are also at various stages with design of their operating models and work programmes. It is within this context that this review has been done, based on a high-level functional brief of the g oup A more detailed review may be needed once the new entities' work programmes are developed, to ensure the size and shape of the ISK group within the context of the wider system is fit for purpose.



[1] Cabinet Minutes CAB-21-MIN-0092: Health and Disability System Review – proposals for reform (March 2021).

## Summary of recommendations

We recommend the following as key priorities for the ISK group.

- Simplify the group structure and layers to three arms, reflecting its core functions: intelligence, surveillance and knowledge.
- Ensure in-house public health epidemiology expertise to guide analysis and support the group's role as thought leader and system steward.
- Core needs for the group's capability:
    - sector-recognised leadership skills and public health expertise
    - in-house data analytical capability, working across the group
    - critical appraisal and report writing skills
    - development of wider team in mātauranga Māori and tofo loloto and focus on Māori and Pacific workforce recruitment
    - a secretariat and coordination function, and strategic commissioning skills.

In our view, simplifying the structure and removing the layers of the group will help to reduce silos and allow more collaboration. In addition, it is important to note that ISK won't be able to do it all – and it shouldn't if it is to carry out its role as steward for public health intelligence and surveillance. It should therefore have strong commissioning skills to mature to a more strategic partnership approach, working closely with the Institute of Enviro mental Science and Research (ESR) – as well as other key agencies across the Public Health Knowledge and Surveillance System (PHKSS) – and stick to core PHA activity, commissioning specialised work where needed.

We consider that addressing these priorities will enable the group to deliver on the work it is tasked with – strengthening public health intell gence, knowledge, and surveillance across the system with a more effective PHKSS. This will help to ensure that the ISK group fulfils the vision of the reforms for a system that is strong on population and public health.

### Intelligence

In our view, the intelligence arm needs in-house data analytics and critical appraisal capability but not necessarily data engineering skills. It should focus on core PHA activity, and commission research or short-term projects from specialists where necessary.

The intelligence arm would take surveillance and intelligence data and information from various sources, commission and collaborate across the health system, academia, and external expertise to produce knowledge and insights products for internal and external customers as required.

Science communication is a critical skillset to help build and maintain the group's credibility as thought leader.

## Surveillance

The surveillance arm would be focussed on designing, leading, and managing the PHKSS work programme, coordinating the surveillance activities across the system.

In our view, it needs: a secretariat function, strong strategic commissioning, active relationship management and engagement capability.

The surveillance function will need to work closely with and bring together the Office of the Director for Public Health (ODPH), PHA Chief and Principal Advisors the National Public Health Service (NPHS), Te Aka Whai Ora, ESR, the Ministry' Evidence, Research and Innovation (ERI) directorate, other surveillance providers, technical and data solution providers to be successful.

## Knowledge – science and technical advisory

It is critical the knowledge arm has sector-recognised expertise across public health.

This team would bring together the existing science and technical advisory expertise to form the knowledge function. The skillset should be broad and cover communicable and non-communicable disease expertise.

We expect that it has a mix of senio advisors and advisors with capabilities in a range of topics – we suggest epidemiology, health sciences, health economics and pharmacy as one possible combination

# 1. Introduction

## 1.1 Review of the ISK group's capability and capacity

On 1 July 2022, the new Public Health Agency (PHA) was established within the Ministry of Health/ Manatū Hauora as part of significant health reforms.

One of the key functions of the new PHA is the Intelligence, Surveillance, and Knowledge (ISK) Group. The kaupapa of the ISK group is to lead, co-design, and develop public health intelligence and knowledge to inform strategy, policy, regulation, monitoring, and the broader health sys em response, including population and public health actions.[2] The ISK group will take a stewardship role f r ISK across the health system.

To ensure the ISK group is fit for purpose and set up to deliver on its new and emerging work programme, the PHA engaged Sapere Research Group (Sapere) to conduct a high-level capability and capacity review of the ISK group.

## 1.2 Approach, scope and key assumptions

To understand the expectations of the ISK group and the capabilities and capacity needed to deliver on this, we:

- reviewed background and PHA establishment documents provided to us by the PHA, and other key reform documents (e.g. publicly available Cabinet papers and minutes)
- interviewed stakeholders from across the Ministry, PHA, members of the ISK expert sub-working group, Health New Zealand – Te Whatu Ora, the Māori Health Authority – Te Aka Whai Ora, and the Institute of Environmental Science and Research (ESR)
- reviewed the current organisational design
- tested findings w th key informants.

We note that the ISK group's work programme is in development and discussion is ongoing – as it is for many other teams and groups within the PHA, Ministry and wider health system – during these early stages of implementation of the health reforms. Our review and recommendations are based on the draft functional brief provided to us in August 2022, which summarises the expected focus areas and activities of the ISK group at a high level (included in 5.2Appendix A). We expect that the details of the work plan are likely to change as the reforms are embedded across the agency and broader system, which could affect the shape of the ISK group and the extent of technical skills and capabilities that are desirable and necessary for the ISK group.

It is also important to note that as the ISK group is part of a broader public health surveillance and intelligence 'eco-system', its capacity and capability requirements are not only determined by its work programme, but also by the work programmes of other related groups and organisations (e.g., the

[2] "Public Health Agency Operating Blueprint (draft)", dated 28 June 2022.

National Public Health Service (NPHS)). As with the ISK group, these other groups and organisations are also at various stages with design of their operating models and work programmes. It is within this context, that this review has been done.

Out of scope for our review was a detailed work programme and operating model for ISK. Through our review, we made the following key assumptions:

- The Ministry and PHA will continue to contract surveillance and intelligence through ESR.
- Data and digital support will be available to the ISK group so these capabilities are not required in-house.
- The ISK group will work closely with directorates within the Ministry, Te Whatu Ora, the NPHS and Te Aka Whai Ora in development and refinement of their respective work programmes.
- The ISK group will hold some budget to commission research or other specialised work.

## 1.3 Report structure

The remainder of this report is set out as follows:

- Section 2 sets out the background and context for his eview.
- Section 3 outlines our understanding of the role of the ISK group and other agencies in intelligence, surveillance and knowledge functions in the reformed system.
- Section 4 discusses the findings and themes which emerged from our interviews with stakeholders.
- Section 5 contains our recommendations.

# 2. Background

## 2.1 Significant reform

There has been a significant reform agenda for New Zealand's health system. In March 2021, Cabinet agreed to significant changes to transform the health system, drawing on recommendations from the Health and Disability System Review.

Based on a vision of pae ora/healthy futures for all, these changes have resulted in the disestablishment of 20 District Health Boards into a single entity, the establishment of Health New Zealand – Te Whatu Ora, the NPHS within Te Whatu Ora, the Māori Health Authority – Te Aka Whai Ora and the Public Health Agency as a distinct business unit within a considerably smaller Ministry. The Pae Ora (Healthy Futures) Act took effect on 1 July 2022, formally giving effect to the reforms.

Over the first half of 2022 – reflecting the functional design that underpinned the new system operating model – numerous teams and their associated accountabilities were moved out from the Ministry to the new (interim) agencies in tranches based on their functions. Function transfer decisions were agreed at Cabinet-level,[3] which were expected to more than halve the Ministry. For the PHA, in practice this has meant some individuals were separated from their original team structures in the Ministry, which were organised on an issues or subject-matter basis (for instance, drinking water or communicable diseases), and instead organised based on a functional design (e.g., policy, strategy).

## 2.2 Strengthened public health in the new system

### 2.2.1 A new Public Health Agency and ISK Group

The new PHA's role is to "lead on all public health and population health policy, strategy, regulatory, intelligence, surveillance and monitoring functions" in the reformed system.[4]

Intelligence, surveillance and knowledge are crucial functions, which will be led by the PHA's ISK group. To ensure the group can deliver on these functions, it requires the requisite capability and capacity.

However, determining the 'right' capability and capacity for the ISK group is also dependent on the broader public health surveillance and intelligence work programme across the health system and how the various organisations work together. In section 3, we outline the ISK group's remit and what we understand other agencies in the wider intelligence and surveillance system will be doing.



[3] Refer Briefing DPMC-2021/2022-1221. https://dpmc.govt.nz/sites/default/files/2022-08/htu-dpmc-2021-2022-1221-health-reform-transfer-of-functions.pdf

[4] Cabinet Minutes CAB-21-MIN-0092: Health and Disability System Review – proposals for reform (March 2021).

### 2.2.2 The National Public Health Service

The second significant change for public health in the new system is the creation of the NPHS, located within Te Whatu Ora. The service consolidates the 12 public health units (PHUs) and centralises public health operations. While the PHA provides stewardship for the public health system, the operational public health function is to be led by the new NPHS. We understand the intention is for the PHA and the NPHS to

> "work closely to ensure policy and strategy is informed by operations, and operational activities reflect system priorities."[5]

Strong leadership is important to ensure this works well. This is reflected in shared leadership arrangements: the role of the Director of Public Health has continued as a statutory role inside the Ministry, with a leadership role in both the PHA and NPHS.

### 2.2.3 Public Health Advisory Committee

A third major change for the public health system is the creation of a ministerial advisory committee for public health, which will be supported by the PHA. The intent is to help ensure Ministers can access and receive expert public health advice close to hand, undoubtably reflecting the realisation of how important public health expertise was in informing Cabinet decisions through COVID-19.

We understand the form and membership of the committee has been under development and is being finalised or will be finalised as this report is completed.



[5] Cabinet Decision CAB-21-SUB-0092: Health and Disability System Review – proposals for reform (March 2021).

# 3. Intelligence, surveillance and knowledge functions in the reformed health system

## 3.1 What the ISK group will be doing

The ISK group will be the system steward for public health surveillance and intelligence functions, fundamental components of the PHA. As the key Cabinet paper from March 2021 states:

> "The Public Health Agency will have a leadership role across the sector for public health knowledge, research and intelligence.... Strengthened surveillance and monitoring will be a necessary component of the Public Health Agency."[6]

The ISK group will lead a broad work programme to develop a public health knowledge and surveillance system (PHKSS) for the reformed health system. We understand the group's role will not be in primary research, but rather secondary analysis to produce key surveillance and intelligence products to support core PHA functions and strategic outcomes. In doing this, it will need to be able to influence, and work collaboratively to co-design a PHKSS strategy with Te Aka Whai Ora, other key stakeholders in the eco-system, and cross-sectoral partners.

Table 1 below summarises the high-level functional brief of the ISK group, indicating the direction of the group's work programme. This is based on the draft functional brief provided to us by the PHA, dated July 2022 (attached in 5.2Appendix A). In addition to developing the PHKSS strategy, other key activities of the ISK group will include: determining data collection instruments and methods, conducting analysis while uplifting mātauranga Māori and tofo loloto (commissioning where there are gaps), curating knowledge and disseminating it in a meaningful way, supporting the analytical needs and core functions of the PHA, and establishing and implementing continuous improvement across the PHKSS.

Table 1: Summarised functional brief of the ISK group.

| Focus area | Key activities |
|---|---|
| **Leadership & oversight** | Lead and coordinate the development of the national public health knowledge and surveillance system (PHKSS), including:<br>• PHKSS strategy, framework, and supporting documents<br>• System enablers (e.g. Te Tiriti, governance and management, policy and straetgy, workforce, interventions, emergency management, etc.)<br>To be developed with stakeholders, cross-sectoral partners, and communities, embedding mātauranga Māori and tofa loloto. |
| **Data collection & curation** | Determine and set standards for data collection instruments and methods, in partnership with key stakeholders and agency partners: |

[6] Cabinet Decision CAB-21-SUB-0092: Health and Disability System Review – proposals for reform (March 2021).

| | |
|---|---|
| | • Identify and coordinate data requirements, define and apply surveillance tools across population and public health<br>• Where there are gaps, commission core public health data and insights. |
| **Analysis, interpretation & thought leadership** | Analysis of knowledge sources (e.g. clinical & administrative data, qualitative/quantitative research) and uplifting/appraisal of mātauranga Māori and tofa loloto to inform strategy, policy, regulation, surveillance and monitoring<br>• Identify critical research and information gaps and opportunities<br>• Provide risk analysis and predictive risk frameworks for public health prioritisation<br>• Generate and develop global networks to inform the PHKSS. |
| **Visualisation, dissemination & communication** | Create communication and engagement strategy to achieve equity and maximise community utilisation of public health insights (in partnership with communities and key agency partners)<br>• Develop infographics and other collateral for broad range of audiences<br>• Establish, develop and action innovative dissemination and communication channels. |
| **Application of knowledge into action, strategy, policy & decision making** | Support core PHA functions by providing evidence, and support the monitoring function by providing relevant intelligence (set out in the Public Health Strategy Monitoring & Reporting Framework)<br>• Collaborate with other public health (and broader) system partners to transfer PHKSS insight into actions<br>• Collaborate with cross-sectoral partners to support effective approaches to the determinants of health<br>• Maintain international public health PHKSS obligations. |
| **Evaluation & quality improvement** | Establish and implement continuous improvement process for the PHKSS system<br>• Collaborate with key health sector and cross-sectoral partners<br>• Evaluate public health priorities, e.g., progress addressing determinants of health. |

## 3.2 What other agencies will be doing

The March Cabinet paper outlined the principal elements of the new health system and the roles of the new agencies:

> "The Ministry of Health should be strengthened in its role as the steward of the health system, leading on strategy and policy.
>
> Health New Zealand should be established as the operational lead for health services, undertaking planning and commissioning, monitoring performance, and driving innovation.

> The Māori Health Authority should be established to drive a focus on hauora Māori in the system, working jointly with the Ministry and Health NZ to agree strategies, plans and priorities.
>
> The Public Health Agency and national public health service should be established to focus on strengthening health protection and health promotion and to improve public health knowledge, research and intelligence." [7]

These other entities will also need to carry out intelligence, surveillance, knowledge or closely related activities to deliver on their mandates. We have summarised our understanding in Table 2 – d awing on the documents provided by the PHA and stakeholder comments from our interviews – of the key entities in the new system and their roles as it relates to intelligence, surveillance, and knowledge activities.

Table 2: Key entities conducting or providing intelligence, surveillance, and knowledge and relat d activities in the new system, and their roles

| Agency | Role |
|---|---|
| ISK group, PHA – **Ministry of Health** | Steward for public health intelligence, surveillance and knowledge across the health system. In partnership with Te Whatu Ora and Te Aka Whai Ora.<br><br>Data analysis and intelligence to support core PHA functions and strategic outcomes. |
| Evidence, Research and Innovation (ERI) directorate – **Ministry of Health** | ERI includes research, innovation, analytics, scientific and economics capabilities:<br>• Resea ch & Innovation aims to be the system lead for health research strategy, and provides the Ministry's research and methodological expertise and advice.<br>• Analytics & Insights aims to enable evidence-based decision-making through customer-driven, timely, focused analytics.<br>• Science Advisory aims to provide scientific leadership, advice and recommendations to the Ministry and Ministers, and evaluates evidence and insights to inform decision- and policy-making.<br>• Health economics aims to contribute economic evidence, analysis and principles to support decisions about trade-offs, with an emphasis on improving value (including improving equity).[8]<br><br>While some skills are likely to be common between ERI and the ISK group, we understand the ERI group's mandate is slightly wider in that it will provide stewardship for the overall system while the ISK group will focus on public health. |

[7] Refer Cabinet Decision CAB-21-SUB-0092: Health and Disability System Review – proposals for reform (March 2021)

[8] "Introducing the Evidence, Research and Innovation Directorate" PowerPoint slides, dated 13 July 2022.

| | |
|---|---|
| National Public Health Service – **Te Whatu Ora**<br>  | The NPHS will lead surveillance and intelligence activity to carry out operational response. We understand from speaking to a regional public health physician that the local offices could have the role of collecting and analysing local information (and contributing to national datasets) to inform local responses. Accordingly, the national office would focus on translating knowledge from local level into national and regional guidance. This is supported by the high-level draft accountabilities framework, which also suggests that Health NZ will be responsible for maintaining the national health information system, and facilitating access to intelligence for service delivery.[9]<br><br>Stakeholders commented that the differentiation between the strategic aspects of surveillance and the operational aspects of in elligence and surveillance is yet to be clearly defined (we discuss this further in the next section). In our view, both the NPHS and ISK group are likely to use the some of the same basic information in their analysis, but it is the purpose of the analysis that will be help to demarcate their roles. |
| **Te Aka Whai Ora**<br>  | As part of its mandate to ensure the health system works well for Māori, Te Aka Whai Ora will also need to carry out its own intelligence, surveillance and knowledge activities.<br><br>Te Aka Whai Ora will work in partnership with the Ministry and Te Whatu Ora to coordinate and lead the PHKSS, and advance mātauranga Māori in intelligence and knowledge.[10] |
| Health Intelligence and Surveillance Group **– ESR**<br>  | ESR has carried out a large component of surveillance activity for the health sector for a long time through contracts with the Ministry.<br><br>The Health Intelligence and Surveillance group in ESR has significant expertise and capacity, with approximately 14 epidemiology analysts and advisors, 20 analysts in its data and informatics team (data engineers, informaticians and business analysts), three public health physicians and two public health medicine registrars. ESR also contracts with other agencies outside the health sector.[11] |



[9] "DRAFT Public Health System Accountabilities Framework", dated June 2022.
[10] "DRAFT Public Health System Accountabilities Framework", dated June 2022.
[11] "Health Intelligence and Surveillance – ESR" PowerPoint slides.

# 4. Findings

As noted above, to understand the core capabilities and expectations of what is needed for a robust ISK group, we conducted numerous interviews with key stakeholders. This included people from across the Ministry, PHA, members of the ISK expert sub-working group, Te Whatu Ora, Te Aka Whai Ora, and ESR.

Several themes emerged from these conversations. We discuss these below.

## 4.1 Key themes from interviews

Stakeholders share an expectation that the ISK group should be the national 'thought leader' for public health intelligence and surveillance. Most expect that the ISK group needs to have analytical capability, but there have been some mixed views about the extent of expertise and new skills it needs. For instance, some hold the view that data analytical capability (data manipulation and presentation) will be required, whereas others feel this is unwarranted. Overall, there was uncertainty of what capability ISK requires, as the interviewees are forming their own teams/roles, and are not familiar with the work programme or composition of skills in the existing ISK group.

### 4.1.1 Distinguishing between "strategic" and "operational" to avoid duplication

Most interviewees distinguished the function of the ISK from the NPHS in terms of having either a strategic or operational focus, ISK being the former and NPHS the latter. However, determining what is meant by 'strategic' versus 'operational' is yet to be clearly defined and agreed, and both organisations are working together to determine this. In general, it is agreed that strategic surveillance and intelligence have a longer time horizon focus (e.g., 18 months plus), an international focus looking at emerging events, issues and responses. Operational surveillance on the other hand was shorter term and more directly focused upon supporting public health responses for regional health threats.

There was general concern that without clear articulation and demarcation of roles, there would be a degree of either duplication or gaps in activity. We understand that in developing their respective work programmes the PHA and NPHS will be in discussions to ensure alignment.

While these concerns have been expressed within the context of the early stages of reform, inefficiencies are likely to arise if roles are not formally acknowledged, communicated, and supported.

> "At some point the operational data becomes strategic… [NPHS] would be focussing on 19 months onwards… [PHA] should be from the one-year mark. Should be overlapping somewhat."

> "Intel in the PHA should be focussed on months to years, but days to week for an operational focus."

It is likely that there may be some overlap in day-to-day activities but drawing distinctions based on the *purpose* of the activity – for a strategic or operational activity – rather than nature of that activity

could help to reduce possible duplication. There seemed to be general agreement that both functions will have to work together to support decision-making, from both parts.

S9(2)(g)(i) [redacted]

The distinction between operational and strategic can therefore be considered as one of purpose as well as time horizon. Surveillance activities of both kinds are likely to draw upon the same or similar underlying information and datasets, even if the focus of the analysis varies in order to address strategic or operational questions. This reinforces the view that there will need to be effective coordination between strategic ISK surveillance, and operational surveillance occurring in in the NPHS and other places.

### 4.1.2 Relational skills will be key

The need for very good strategic commissioning, relationship managemen , and organised networks or groups (e.g., an analytical network) will be crucial. One interviewee commented succinctly:

> "Relationships are going to be huge."

The ISK group will need the skills to navigate new relationship structures/dynamics as the reformed system embeds – in particular to work closely with Te Aka Whai Ora and ensure Te Tiriti is given effect to from end-to-end. S9(2)(g)(i) [redacted] Some commented that the PHA was still doing a lot of day-to-day operational work which should be moved to the NPHS, again relating to the need to distinguish between the agenc es oles. This likely reflects the team's origins with many having transferred over from COVID-19 operations.

S9(2)(g)(i) [redacted]

The ISK group will need to provide leadership, build, and maintain networks across the ISK ecosystem. Sector-recognised leadership and relationship management skills will be important to ensure integration and to resolve potential issues in data transfer and automating processes. As mentioned in section 3, we understand the ISK group's role not to be in primary research but rather in secondary analysis. This will require the capability to engage with and influence other teams (i.e., ERI) and agencies in the system, particularly on research governance around public health priorities.

> "Integration and relationship of teams with Te Aka Whai Ora and Te Whatu Ora is going to be crucial."

There was also some concern over a functional organisation design approach taken across the system, and the splitting up of issues/subject matter teams across PHA and Te Whatu Ora. There is a view that it will be important to have people with experience working across public health in New Zealand within the PHA and the ISK group, to know who to work with and about what, across multiple organisations.

### 4.1.3 The ISK group should be a thought leader, and it needs credibility

Interviewees shared an expectation that the ISK group should be the national 'thought leader' for public health intelligence, surveillance, and knowledge. Interviewees described their expectations for the ISK group to be:

> "the machine that adds value"
>
> "the 'centre of knowledge'"
>
> "a centre of excellence in non-communicable disease as well as communicable diseases"
>
> "The all-seeing brain that joins those bits [ESR, Te Whatu Ora, MBIE, etc] together for the wider burden of disease, then turns that info into intel  informs immediate decision making and policy, priority setting etc."

S9(2)(g)(i) [redacted] To be regarded as credible national thought leaders, the ISK group will require senior and well-regarded expertise in public health and public health epidemiology and draw on the Office of the Director for Public Hea th (ODPH) subject matter experts (SMEs) when needed. However, there was concern that ODPH may not have the capacity to meet the ISK group's needs. A small number of people suggested joint appointments with academia but also acknowledged this could be tricky, and could be pe son-dependent.

S9(2)(g)(i) [redacted]

> "It should be a nationally respected group, interface with academia, to lead work."
>
> "Need to be well connected to researchers to know about studies, what has been done. Impression is that the Ministry has tended to hold researchers at arm's length… Very important to build relationships between institutions, so have access to the information."

People also expressed uncertainty over who will "own" the surveillance systems, who will hold budgets (e.g., with ESR), and who will implement the surveillance strategy and stand up the PHKSS.

> "PHA should be aggressively partnering with the new capacity at ESR."

### 4.1.4 Technical and critical thinking skills needed but some differing views on the appropriate mix

#### Data analytics

There was general agreement that the ISK group needs analytical capability, but there were some mixed views on the size and extent of technical data analytic skillset required: data engineering, working with raw data, working with information, or outputs of data sets.

> "Need some analytical skill but not intense data skills as aggregate data already available."

> "They could have quite a big analytical capability, because there's lots to do. They should be interested in surgery readmission rates, ASH [Ambulatory Sensitive Hospi alisation rate] etc. which is all outside NPHS. There should be an IDI lab [Integrated Data Infrastructure] in ISK so you can see interaction between government datasets.

> "If it all went swimmingly, and had some good relationships with da a engineers in Te Whatu Ora, don't necessarily need too many people with that deep data analytical skills."

> "PHA may not need many data management people. Need to be able to talk easily to the person who did the analysis to answer queries and interpret info robustly… Will need some of their own analysis, because sometimes they will want stuff that nobody else wants."

Weight of opinion tended towards the ISK group needing at least capability to interrogate, interpret and present data effectively. Those in favour of having data analytics called for expertise in geospatial, demographics, data visualisation and data presentation. Further, data analysts need enough expertise to know, understand, or be curious to question idiosyncrasies of various data sets.

> "Need good understanding of demographic info, and its limitations… Applying that critical thinking to analysi is important, and possibly missing these days. HDI's [Health and Disability Intelligence] predecessor was public health intelligence. This is what PHA should be good at… Need skills to understand and interpret information."

Through this dis ussion, again the issue of demarcating what other parts of the Ministry (e.g., ERI, NPHS) was raised. There was some concern that if there is not some data analytics within the team (e.g., the ability to manipulate various sources of data, and present analytical results), then the PHA may no meet expectations. In other words, relying on another part of the Ministry or sector to p ovide analytics exposes some risk to the PHA.

#### Subject matter expertise

We understand the ODPH will hold some subject matter expertise, although interviewees expressed concern for a risk to the ISK group's credibility if it did not have this in-house. Some thought that subject matter expertise belongs in the ISK group (e.g. epidemiology). Others thought these SMEs need to be able to traverse a wide range of public health subjects and from a systems perspective.

> "Need people to understand the changes to public health in recent years – system focussed, system drivers of disease, tailoring information to ensure that these factors are seen."

> "Subject matter experts yes, but people who can look past specific subjects and go above one topic. "

> "Really specific disciplinary knowledge is very important for a particular issue, but the technical expertise might be more divorced from the system response."

For intelligence, it was suggested that SMEs weren't needed in specific topics/fields as much as general public health expertise and the ability to work across communicable and non-communicable disease areas (with environmental health seen as a subset of non-communicable disease).

A small number of people thought it important for the group to have general and strong critical appraisal and writing skills, not necessarily technical and scientific – people who can work with data analysts, science and technical advisors and SMEs to curate knowledge that feeds into policy and other decision-making. As such, there would need to be enough public health epidemiology expertise at the senior level while being careful to balance with diversity in perspective.

Economics was also suggested as a capability for the ISK group to have in-house, to link economic policy and public health outcomes, and drive understanding of the economic levers for public health. As such, the type of economics capability that may better sui the ISK group is likely to be weighted towards general health economics rather than a speci list in economic health evaluation.

### Research skills

Some thought that the ISK group shou d be able to conduct its own research, reflecting community needs (e.g., community-level qualitative and lived experience), while others thought this didn't need to be in-house – as specialised capability, it could be commissioned as needed. The ISK group would therefore need people that have enough understanding to know what questions to ask and to question methods. Two people expressed a view that the Ministry did not have the capability to assess research applications with one citing COVID-19 as an example where specialist skills elsewhere could have been better used They believed that research funding as part of the COVID-19 response should have been sent to the Health Research Council (HRC) for commissioning research rather than the Ministry. Instead, there was an internal Ministry process, duplicating functions in the system.

> "Don't need to be doing the research, got great research people who can do the work …. PHA s role is not to do primary data collection but they might commission piece of research."

> "MoH and organisations are not research organisations and shouldn't be doing research…don't have the skills to assess research applications. Don't have the skills of the HRC."

> "Suspect they need general epidemiology and research expertise that helps guide questions… scope the question, oversee methods used, review methods and help deliver insights."

### 4.1.5 Integration and analytical support for the wider PHA

We also heard concerns that the ISK group's skills and outputs need to be easily accessed and visible, as there is a huge potential to inform policy and strategy work throughout the PHA and Ministry.

> "Don't see any link to using data to understand public health needs, then putting back into the system in terms of strategy and priority setting."

> "The relationship with policy is critical for all teams. Policy people having access to the right sources."

> "… not about getting sent update reports and emails every week to get lost in my inbox… a key problem for ISK is making information discoverable."

Feedback also suggested that the ISK group needs to be able to provide analy ical skill with specialist knowledge to support other groups within PHA. In particular, it is important that there is the resource to support the analytical needs of Pacific Health, which we understand does not currently have an intelligence or analytics team.

### 4.1.6 Enabling functions – coordination support and science communications

With a number of technical advisory groups (TAGs) playing a key role in providing specialised public health advice, there is strong need for good secretariat capability.

In addition, as the ISK group will be responsible fo coordinating and leading the development of the national PHKSS and system enablers, strong programme and coordination support across the group will be important.

Communications skills were al o commonly mentioned as an important skillset to have, in particular, science communications experience. Many said that communications and storytelling was important as to be able to translate information to useful intelligence.

> "Need to be able to communicate the 'so what'."

> "Need to take knowledge from the centre and disseminate better."

### 4.1.7 Cultural competency, particularly of Māori and Pasifika

We heard that the ISK group needs to ensure it has the requisite capability to operate in a culturally competent and safe manner, ensuring mātauranga Māori is embedded within the surveillance and knowledge system, and that the limitations of ethnicity data, for instance, are understood and that this is factored into all analysis. Again, to give effect to Te Tiriti with partnerships and strong relationships, it needs to be done throughout the cyclical process of activity (e.g. don't bring Māori input and views in part way through).

> "We should be going the extra mile to recruit and train Māori. And partner with Te Aka Whai Ora – on the work and building up the expertise."

Interviewees also expressed a need to recruit Māori and Pacific analysts/advisors, as well as generally upskill the group to work in a culturally competent and safe manner. S9(2)(g)(i) [redacted] It will be important to work closely with Te Aka Whai Ora, but people within the ISK group will also need to have the cultural capability to understand and support the embedding of mātauranga Māori in the development of intelligence and knowledge.

### 4.1.8 Broaden public health skillset

In general, interviewees were not familiar with the current Science and Technical Advisory group, and tended not to have strong views about the specific skill gaps in this area. S9(2)(g)(i) [redacted] There was sentiment that there had been (necessarily) too much of a focus on COVID and more recently, monkeypox – one interviewee commented that a pub ic health "retooling" was needed.

> "In absence of a clear strategy for ISK, there is a real risk of doing the next big outbreak instead of making an ISK that focusses on the bigger picture."

These people said the group appeared to be more 'weighted' towa ds communicable diseases and that it needs to broaden its skill set and focus to non-communicable diseases, environmental health, and broader public health concerns – particularly important to address health inequities.

## 4.2 Make or buy? Strategic commissioning needed

A recurring question underlying all our conversations with stakeholders was about what the ISK group would do in-house – what would be core to the group – and what the group should seek from others. This is an important issue which may change depending on the final details of the work programme of the group and other key agencies – namely the NPHS, Te Aka Whai Ora, and the ERI directorate.

There was comment that there are many institutions with existing infrastructure and expertise and that the ISK group needs to dete mine to what extent it "makes or buys" the activity and outputs required to fulfil its function. As mentioned above, some interviewees felt that while subject matter knowledge is required in-house, this should be public health knowledge that is able to operate at the 'whole of systems' leve , rather than investing in specific knowledge (e.g., disease specific) that could exist in another public or private entity and may only be needed for a specific time.

The ISK group won't be able to do it all, particularly if is to fulfil its role as the system steward. For instance, ISK should not attempt to do its own primary research. The group will should stick to core PHA activity and commission in specialised or short-term work. As such, it will need strong strategic commissioning skills. There was general agreement that commissioning needs to mature from simply procuring services, to a more strategic partnership approach.

# 5. Recommendations

In our view, the group should simplify its structure and layers to three arms, reflecting its core functions: intelligence, surveillance and knowledge.

It will be critical for the group's credibility as thought leader to have in-house public health epidemiology expertise to guide analysis. The existing Science and Technical Advisory team is important but needs reshaping to encourage reduced silos and greater collaboration to deliver on a broader focus of work in the future.

We think the key priority needs for the ISK group are:

- sector-recognised leadership skills and public health expertise
- in-house data analytical capability, who work across the group
- critical appraisal and report writing skills
- development of wider team in mātauranga Māori and tofo loloto, and focus on Māori and Pacific workforce recruitment
- a secreteriat and coordination function, and strategic commissioning skills.

The success of the ISK group is reliant on having fit-for-purpose capability and capacity. In this section we make our recommendations on the capabilities that each arm of the group – intelligence, surveillance, and knowledge – should include.

To move towards a PHA with a robust ISK function, we think it is important the ISK group:

- reduces the size and layers within the g oup
- allows some flexibility in function ac oss intelligence and surveillance, especially among analysts.

We found the group had a number of small teams that were reflective of the pre-reform structure within the Ministry, which often had teams that were subjects- or issues-based. In our view, reshaping and reducing the layers with n the group will help to simplify the structure, reduce silos and bring together a more cohesive and collaborative ISK group. This rationale underpins our recommendations.

We believe there should be some flexibility in function for Chief Advisors and particularly analysts. In our view, data analysts should work alongside analysts with public health experience – but weighted towards st ong critical thinking and relational skills, with the ability to operate across a range of topics. Practically, analysts may report to a manager in one team, but a principle of cross-functionality will allow different skillsets (e.g. science and intelligence) to come together to develop high-quality products, and allow analysts opportunity to broaden their skillsets. We understand this is also the direction of the ways of working across the wider PHA towards the use of "tiger teams".[12]

Our use of job titles and numbers of analysts/advisors in the following sections is to indicate the shape and balance of seniority that we consider the ISK group needs. We assume the job titles for these positions will depend on the norm and set of job titles used within the wider PHA and/or

[12] As described in the "Public Health Agency Operating Blueprint (draft)". Dated 28 June 2022.

Ministry which corporate services could advise on. We understand the headcount of the overall group will depend on the budget available and other limiting factors which we have not considered in our review – this could mean smaller and more senior teams to ensure the requisite capability is available for a robust ISK function.

Our review has been a high-level one. We interviewed stakeholders in the group, primarily in managerial roles, and conducted a relatively small-scale desktop review of key documents on the establishment of the PHA. Importantly, at the time of our review, the work programme of this group and others with related ISK-type functions are yet to be determined. The ISK group will need to be supported by other parts of the new system – roles and relationships of which are key and will continue to develop through these early stages of the reforms. In addition, the appropriate skill mix – of commissioning management and subject matter expertise in particular – will depend on the degree of "make or buy" that is determined appropriate.

As the work programmes and ways of working between different groups and agencies within the new system become clearer, it may be important for a more fulsome review of how the group fits and operates within the wider system.

## 5.1 Needs at the group-level

In terms of capability at the group-level, we recommend:

- one Group Manager (and executive suppo t)
- three arms to reflect its core functions:
    - intelligence
    - surveillance
    - knowledge (science and technical advisory)
- Principal Advisor, Equity
- two Chief Advisors reporting to the Group Manager (deployed across the group as needed):
    - Public Health Epidemiology
    - Public Health Medicine Specialist
- a Chief/ ead Advisor for the knowledge and science arm.

We recommend a Principal Advisor for Equity, reporting to the Group Manager, and working closely with Te Aka Whai Ora on equity for Māori. In our view, this is needed to ensure that ISK work is designed and commissioned to support equity – and to ensure that there is a clear focus on equity in the stewardship of the intelligence system and wider PHKSS. We understand that there a lead for equity in the overarching PHA leadership – these roles will need to work closely together to avoid duplication.

## 5.2 Capabilities for each key arm of the ISK group

Our recommendations for the capabilities for each arm of the IKS group are as follows.

### Intelligence

> In our view, the intelligence arm needs in-house data analytics and critical appraisal capability, but not necessarily data engineering skills. It should focus on core PHA activity, and commission research or short-term projects from specialists where necessary.
>
> The intelligence arm would take surveillance and intelligence data and information from various sources, commission and collaborate across the health system, academia, and external expertise to produce knowledge and insights products for internal and external customers as required.
>
> Science communication is a critical skillset to help build and maintain the group's credibility as thought leader.

We recommend a small number of data analysts, with some s niority and expertise in data management and presentation, to work alongside a larger g oup of analysts with public health experience. Data analysts would ideally have familiarity with health data, but having the nous to query data idiosyncrasies would be necessary to ensure information is accurately translated into useful intelligence (for instance, age-standardisation can be particularly important to do correctly for Pacific and Māori populations). The ISK group should have modelling and data visualization skills, but may not need data engineering skills – these is the sort of expertise that may be appropriate to "buy".

Science communication is another critical skillset which we consider the ISK group needs for its credibility as the steward and leader. Reflecting our general recommendation for a flatter structure, it would be important for the capability to be available across the wider group, although it may functionally sit best within intelligence. This is important to curate knowledge and in a format that is meaningful, compelling, and understood – and distinct from clinical communications.

We recommend tha the capability for the intelligence arm consist of:

- Manager (1)
- Team administration (1)
- Principal Advisor, Epidemiology (1 – 2)
- A small number (4 – 5) of data analysts
- A number (6 – 8) of analysts (with some expertise and experience in public health epidemiology)
- Science communication (1 – 2)
- Across the analysts, some expertise in working with ethnicity data, expertise/experience in mātauranga Māori and tofa loloto and able to weave this into the analysis.

## Surveillance

> The surveillance arm would be focussed on designing, leading, and managing the PHKSS work programme, coordinating the surveillance activities across the system.
>
> In our view, it needs: a secretariat function, strong strategic commissioning, active relationship management and engagement capability.
>
> The surveillance function will need to work closely with and bring together the ODPH, PHA Chief and Principal Advisors, NPHS, Te Aka Whai Ora, ESR, MoH ERI, other surveillance providers, technical and data solution providers to be succe sful

A key part of this group will be a secretariat and coordination function that can help to manage the network of Technical Advisory Groups (TAGs) and range of people that may be needed to access for different questions at different times. Relationship management capabilities will be important to navigate the TAGs. The group will also need to have some in-house expert se to understand the questions being asked and who to ask them of where needed.

We recommend that the capability for the surveillance arm consi ts of

- Manager (1)
- Team administration (1)
- Principal Advisor, Epidemiology (1)
- Advisors/analysts (2)
- Programme manager, programme administrator, and secretariat for the working groups/governance group (3 – 4)
- Relationship manager/contrac manager (commissioning expertise).

We think that commissioning sk lls, particularly in relation to surveillance by ESR, need to mature from simply procuring services to a more strategic partnership approach. However, the commissioning capability and subject matter expertise will depend on the degree of "make or buy" adopted. As ESR provides services to he Ministry through a range of avenues, it will also be important that this is streamlined and managed centrally to ensure strategic outcomes are achieved. In our view it seems most appropriate for this to be managed within the PHA, whether in the surveillance branch or more centrally in the PHA.

We expect the team would also need to have the in-house capability to support surveillance and assessment work for public health threats, as required to meet the International Health Regulations 2005.

## Knowledge – science and technical advisory

It is critical the knowledge arm has sector-recognised expertise across public health.

This team would bring together the existing science and technical advisory expertise to form the knowledge function. The skillset should be broad and cover communicable and non-communicable disease expertise.

We expect that it has a mix of senior advisors and advisors with capabilities in a range of topics – we suggest epidemiology, health sciences, health economics and pharmacy as one possible combination.

We recommend that the capability for the surveillance arm consists of:

- Manager (1)
- Team administration (1)
- Secretariat (2-3)
- Senior advisors/advisors across a range of topics, in luding:
    - Epidemiology
    - Health sciences
    - Health economics
    - Pharmacy.

We expect that the mix of specialties and experience of advisors in this arm – more so than the other ISK arms – will depend on the direction of he g oup's work programme. The ISK group will require well-regarded expertise in public health – again, to ensure it has the credibility. As epidemiologists and others in health science tend to have their own specialisations, it will be important that the advisors have a strong general understanding to know what questions they may need to ask and commission from elsewhere or draw on the ODPH SMEs where needed.

Health economics is a skillset that should be considered in relation to the ERI directorate's function and relationship with the ISK group. An economic discipline brings analytical and quantitative skills that can be useful to help question, and keep abreast of, emerging evidence (including cost-benefit analysis) to inform broader questions of policy and economic settings. It will be important not to duplicate functions and ensure the economics capability has a clear and integrated role within the work programme, linked in with the central economics group within the Ministry.

# Appendix A  High-level functional brief of the ISK group

Provided by the PHA (draft dated 22 July 2022).

**DRAFT – in development**

## Summary – Intelligence, Surveillance & Knowledge



**Intelligence, Surveillance & Knowledge Kaupapa:** Leads, co-designs, and develops public health intelligence and knowledge to inform strategy, policy, regulation, monitoring and the broader health system response, including population and public health actions.

| Focus Area | Key activities |
|---|---|
| Leadership & oversight | • Lead and coordinate the development of the national public health knowledge and surveillance system (PHKSS), including system enablers e.g., Te Tiriti, governance and management, policy and strategy, workforce, interventions, emergency management etc.)<br>• Develop a PHKSS strategy and supporting documents (e.g. long-term investment plan, horizon scanning and preparedness) and contribute to wider Ministry strategies based on an in-depth understanding of the needs of system users<br>• Design and build the PHKSS framework through a work programme developed with stakeholders and communities, embedding mātauranga Māori and tofa loloto across all aspects of the function through appropriate Māori and Pacific leadership, oversight and governance<br>• Lead, coordinate and support the development of networks to deliver insights, e.g. centres of expertise<br>• Collaborate with cross-sectoral partners to ensure collection of and access to relevant information and knowledge. |
| Data collection & curation | • Determine and set standards for data collection instruments and methods in partnership with key stakeholders, understanding/respecting the full spectrum of potential data sources<br>• Identify and coordinate data requirements across population and public health in partnership with key stakeholders<br>• Define and apply surveillance tools for population and public health in partnership with key stakeholders<br>• Commissioning of core public health data and insights where there are gaps (including research) in collaboration with key agency partners. |
| Analysis, interpretation & thought leadership | • Analysis of knowledge sources (including emerging knowledge, e.g. clinical & administrative data, qualitative/quantitative research) and uplifting/appraisal of mātauranga Māori and tofa loloto to inform strategy, policy, regulation, surveillance and monitoring<br>• Identify critical research and information gaps and opportunities<br>• Provide risk analysis and predictive risk frameworks for public health prioritisation<br>• Generate and develop global networks to inform the PHKSS. |
| Visualisation, dissemination & communication | • Create a communication and engagement strategy to achieve equity and maximise community utilisation of insights (in partnership with communities and key agency partners)<br>• Develop infographics and other collateral to visualise public health intelligence to meet the needs of a broad range of audiences (e.g. Ministers, whānau and communities), including supporting core PHA functions<br>• Establish and develop dissemination and communication channels (in partnership with Health NZ/NPHS, MHA, Iwi, Iwi-Māori partnership Boards)<br>• Disseminate and communicate public health intelligence through established and innovative methods. |
| Application of knowledge into action, strategy, policy & decision making | • Support core PHA functions by providing evidence; in particular, support the monitoring function by providing relevant intelligence as set out in the Public Health Strategy Monitoring & Reporting Framework<br>• Collaborate with other public health (and broader) system partners to transfer PHKSS insight into actions<br>• Collaborate with cross-sectoral partners to support effective approaches to the determinants of health<br>• Maintain international public health PHKSS obligations |
| Evaluation & quality improvement | • Establish and implement a continuous improvement process for the PHKSS system through effective engagement with key stakeholders<br>• Evaluate the PHKSS system, including collaboration with key health sector and cross-sectoral partners<br>• Evaluate public health priorities, e.g., progress addressing determinants of health. |

MANATŪ HAUORA
MINISTRY OF HEALTH

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