



Summary: Review of 2013 passenger pathway monitoring survey

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Summary

Each year MPI reports on the level of compliance on the passenger pathway, and is required to demonstrate that 98.5% of passengers are compliant with biosecurity requirements by the time they exit the airport.

To demonstrate the level of passenger compliance MPI has developed and implemented a survey of passengers following the last point of biosecurity intervention at Auckland, Wellington and Christchurch airports. This is the point just prior to when a passenger exits the clearance area into the airport arrival hall. MPI uses the survey results to estimate passenger compliance across the passenger pathway.

MPI commissioned Colmar Brunton to carry out this review to provide an independent perspective on the passenger survey, and a view on whether the compliance estimates are robust.

How we carried out this review

Our review comprised:

- an examination of relevant survey documentation
- face-to-face and telephone discussions with survey designers
- our attendance at PA QI (Performance Assurance Quarantine Inspector) training, including the formal pilot day at the International Terminal Building
- systematic observations of 174 passenger survey inspections
- eight confidential follow-up interviews with PA QIs and Team Leaders
- verification of the final compliance estimate.

Additional details about how we conducted this review are provided in the body of the report.

Conclusions of this review

We have divided the conclusions of this review into those relating to compliance measurement, those relating to survey representation, and those relating to other points of note.

Our overall view of the 2013 passenger compliance survey

Our overall view is that MPI has put considerable effort into designing a survey methodology that attempts to maximise the reliability of compliance measurement and the representativeness of the final sample of passengers. We have no hesitation in giving our independent view that the compliance estimates based on this year's methodology are robust.

It is important to keep in mind that a survey is a measurement tool, and all measurement tools contain an element of error. Within this review we provide a number of suggestions for further refining the survey methodology. We would make suggestions of this nature for any survey we review. Our general perspective is that the reduction of survey error should be a continual process, and reviews should be on-going.

Compliance measurement

To measure whether each passenger was compliant, their checked and carry-on baggage, and all accessories not worn by the passenger, were fully inspected by a qualified Quarantine Inspector. If no risk good was found, the passenger was deemed to be compliant.

In our view, a full and thorough inspection of all baggage and belongings is probably the only effective means of determining whether a passenger is compliant with biosecurity requirements. The validity of this measurement method depends in large part on the thoroughness of inspections. The reliability of this measurement method depends on consistency between those carrying out inspections, and consistency in decisions about what is and is not a biosecurity risk.

When designing the survey, MPI put substantial emphasis on procedures and processes to maximise the validity and reliability of compliance measures. These included:

- the recruitment of a small dedicated team of Quarantine Inspectors (QIs) for the survey, called Performance Assurance Quarantine Inspectors (PA QIs) for the survey
- theoretical and practical training for PA QIs on survey inspection procedures
- a general requirement that survey inspections are not carried out at PA QI's normal place of work
- on-going data entry checks
- detailed recording and photographs taken of all risk goods for post-survey moderation
- post-survey moderation to ensure consistency of PA QI decision making about risk goods.

Based on our discussions following the survey, and our observations of survey inspections, the procedures and processes developed and implemented by MPI to maximise measurement validity and reliability were successful. In particular, the training provided PA QIs with an understanding of how to carry out consistent and thorough inspections, and created a sense of ownership over the agreed procedures for ensuring robust measurement. In this way, PA QIs took it as their personal responsibility for ensuring the final compliance measure was robust. Our observations identified only a very small number of instances when carry-on items, accessories, or gifts were not inspected. Importantly, all observed inspections were carried out after the final point of biosecurity intervention at each airport.

As mentioned earlier in this section, all surveys contain an element of error. Below we provide some suggestions for MPI to consider for continuing to maximise measurement reliability going forward.

- The next PA QI training could include a discussion of the results of the moderation process for the current survey, combined with a refresher session on Import Health Standards. This will help PA QIs to identify where decisions can be subjective, and will further improve the consistency of PA QI decision making during future surveys.
- PA QI training could include a more extensive practical component focused on thorough but efficient selection procedures. This may improve the speed of inspections.
- Additional training on how to access databases for data entry, and where to store photographs. Some PA QIs found this challenging in the early stages of fieldwork.
- Additional training on how to deal with difficult passengers may be beneficial, as a bad experience with a passenger can leave the PA QI feeling stressed or distracted during follow-up selections and inspections.

- General reminders during training and during fieldwork to check for accessories and jackets/coats hanging over trolleys.
- Consideration by survey designers of whether some gifts can be x-rayed rather than opened. There was some resistance among PA QIs to opening gifts when the contents seemed fairly obvious and could be examined adequately using x-ray.

Survey representation

The principle of random selection is central to survey research. Essentially, probability theory tells us that results based on a truly random survey sample should reflect the target population, within a given margin of error and confidence level. In reality, obtaining a perfectly representative sample of people for a survey is impossible. In our view, it is the role of the survey designers to identify potential sources of sampling error, and maximise representativeness however possible within a survey's constraints.

At the design stage MPI placed significant emphasis on identifying and mitigating potential sampling and selection error. Strategies for maximising the representativeness of the sample included:

- the recruitment of a small dedicated team of Quarantine Inspectors for the survey
- the development of systematic selection procedures to facilitate random selection, and to reduce the possibility of risk profiling or other PA QI decisions about which passengers to select
- theoretical and practical training for PA QIs about sampling and selection, and why random sampling is crucial for surveys
- a general requirement that survey inspections are not carried out at a PA QI's normal place of work.

Based on our discussions following the survey, and our observations of passenger selections, the procedures and processes developed and implemented by MPI to maximise the representativeness of the sample were successful. Without any exception, the PA QIs we spoke with were able to elaborate on why random selection is important for a robust compliance estimate. The pilot day at the Auckland International Terminal Building proved to be highly valuable, especially for the survey designers who were able to test and adjust specific aspects of the selection procedures prior to fieldwork. In 68 observations of Green Lane selections, and 106 observations of x-ray/item/full selections, we identified only two instances where a PA QI was deviating from the document selection procedures.

The final achieved sample was in the proportions expected by the sample design, which deliberately over-selected passengers arriving through Wellington and Christchurch Airports. Post-stratification weights were applied to correct for the disproportionate sampling scheme, so that the overall compliance estimates are representative of the passengers arriving at each airport by exit/intervention type.

In our view the main area for potential improvement is communication with the normally rostered QIs, particularly in Auckland. PA QIs informed us of some isolated instances at the Auckland International Terminal Building where QIs may have attempted to hinder survey inspections. These instances appear to be motivated primarily by genuine concern, among normally rostered QIs, that full inspection passengers would experience further delays if they are selected for full survey inspection.

Given the extent of training the PA QIs received about the importance of random selection, and the level of confidence expressed by PA QIs in selecting passengers, we do not see these instances as detrimental to the robustness of the survey. For future surveys we suggest MPI considers ways to develop buy-in among the normally rostered QIs, so that they understand the significance of the survey and why it is important for PA QIs to randomly select passengers for full inspection, including passengers who have already undergone full inspection.

Again, all surveys contain an element of error and it is impossible to remove survey error completely. Below we provide some suggestions (in addition to the suggestion mentioned directly above) for MPI to consider for continuing to maximise the representativeness of the sample going forward, and for assisting PA QIs with passenger selection.

- We suggest MPI considers introducing a short half-day pilot phase at each location. This would provide an opportunity for survey designers and PA QIs to adjust selection procedures prior to the commencement of fieldwork.
- Discussions with PA QIs following fieldwork suggest that some became concerned about the low number of passengers they were able to select from full inspection and item inspection exits. In future surveys it may be worth emphasising (or reiterating) to PA QIs that, relative to the Green Lane and x-ray exits, they will not be selecting as many passengers exiting item inspection and full inspection. This should help to alleviate their concerns.
- We suggest that future surveys employ a clipboard checklist that PA QIs can use to keep track of the selection process, including the number of passenger selections made from each selection point, and whether a passenger was selected. A selection checklist would reduce the need for PA QIs to keep a 'mental track' of the selection process. A record of selections and non-selections would also assist Team Leaders to monitor selection processes during fieldwork, without the need to be present during all selections.

Other points of note

Outside the topics already covered, the only additional point of note relates to the level of effort required by PA QIs to carry out full inspections. Most PA QIs agreed that the task of carrying out full inspections is significantly more taxing than regular QI work. Having said this, PA QIs tended to feel that because the survey work was new and interesting, fatigue was not a major issue for them.

We do not have explicit evidence to suggest that fatigue was a serious issue for this survey, but we are mindful of the fact that some PA QIs carried out survey work at multiple locations over the entire passenger and mail survey fieldwork period. When designing the next survey, we suggest MPI considers ways to minimise PA QI fatigue. Doing so will help to reduce the possibility that fatigue may influence passenger selection decisions, PA QI interactions with passengers, or the thoroughness of inspections.

Appendix: How we carried this review

This review was carried out in a series of stages.

1. Discovery phase and consultation phase

This stage was completed in advance of the 2013 survey. It involved face-to-face and telephone discussions with V&S about how the 2013 surveys would be conducted, and a review of documentation, including documentation for the previous surveys and existing documentation relating to the upcoming 2013 survey. Following this stage we provided our view on the proposed methodology for the 2013 survey, and offered suggestions for survey methodology.

2. Attendance at Performance Assurance Quarantine Inspector (PA QI) training.

We attended PA QI training sessions, including sessions devoted to the importance of random sampling and the importance of producing a robust compliance estimate. We also attended the formal pilot day, held at the Auckland International Terminal Building, where we were able to observe survey selection procedures, and assist V&S with refining those procedures to suit the current layout at the airport.

3. Systematic observations

We carried out systematic observations of 174 passenger survey inspections at Auckland (73 observations), Wellington (52 observations), and Christchurch (49 observations) Airports. Observers attended each airport for five consecutive days during the fieldwork period. Observation times were selected to ensure a variety of flight origins and arrival times (eg, early morning, midday, afternoon, and late evening). PA QIs did not know in advance when observers would be present.

The purpose of the observations was to determine the degree to which survey procedures were adhered to, and to identify any areas that are problematic. Observation schedules were developed by us, and were based on the final documented procedures for passenger selection and inspections.

Prior to commencing the observations, observers underwent an extensive briefing with the lead reviewer in Wellington, followed by an airport and clearance process orientation session with a senior Quarantine Inspector at Wellington International Airport. Following the orientation session, observers completed a series of 'pilot observations' where they independently observed the same survey inspections, and then compared schedules to ensure consistency in interpreting PA QI actions.

4. Confidential discussions with PA QIs and Team Leaders

There is always a risk in observation studies that people will change their behaviour in some way because they are under observation. For this reason we also carried out a series of eight confidential discussions with PA QIs and Team Leaders.

The overall purpose of this stage was to gain feedback from those involved in implementing the surveys to learn if any elements of the survey methodology and procedures can be challenging to implement successfully, and to obtain frank feedback about elements of the survey that could potentially be improved.

PA QIs were selected to ensure coverage of the survey inspections carried out at each location. Before commencing each discussion we explained to PA QIs and Team Leaders that MPI had no knowledge of who we were speaking with, and that the purpose of each discussion was to obtain their honest views about the survey. Discussion generally took between 30 and 45 minutes each.