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## BACKGROUND

- Quality Use of Medicines includes the safe and effective use of medicines, and is a core objective of the National Medicines Policy in Australia [1].
- Dispensing data are collected by a government agency (Medicare) for administrative purposes, for reimbursement of the pharmacy where the medicine was supplied.
- Prior to April 2012, dispensing data were limited to prescription medicines which exceeded the patient co-payment cost.
- A proof-of-concept was initiated by the primary author (Kairuz) to develop a comprehensive dataset of local dispensing records. Collaboration with Pudmenzky and Rossato led to the development of software to extract and de-identify dispensing data.
- A pilot study was conducted in collaboration with Fredericks in metropolitan South Queensland (Ethical approval UQ 2012000078).
- In 2013, a sample of retrospective data from three pilot sites permitted geo-mapping of dispensed prescriptions (Fig 1) ; increasing frequency of dispensing is colour-coded from blue (>10 000) to red (>30 000).

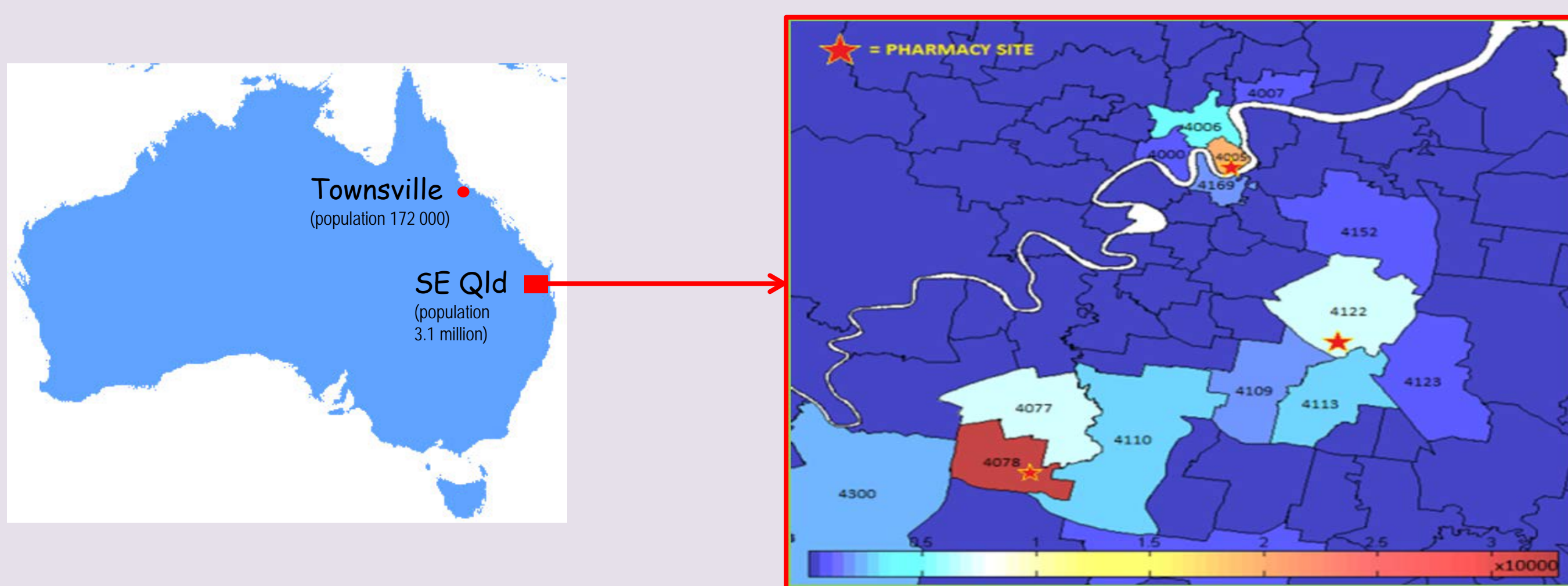


Figure 1 Dispensing frequency – pilot geo-map

- Health outcomes of people in rural areas are often poorer than those in metropolitan cities [2] and regional data are needed to investigate usage patterns of prescription and non-prescription medicines.
- An application for research funding was submitted to James Cook University, a regional Innovative Research University in North Queensland, to develop a drug utilisation research dataset. The project was partly funded and the original method was adapted according to budgetary constraints and is described below.

## AIMS

**Primary:** Develop a dataset of de-identified dispensing data for drug utilisation research in regional North Queensland, Australia.

**Secondary:** Explore a link with an established drug utilisation group: participate in, and contribute to, a relevant conference symposium.

## PROPOSED METHOD

### Implementation:

- Recruit pharmacists in Townsville, a regional city of North Queensland, who are willing to permit de-identification of dispensing data and provide the data to the researchers.
- Develop a merged dataset of de-identified dispensing records that will permit drug utilisation analysis.

### References

- [1] Australian Government. The Department of Health. National Medicines Policy. <http://www.health.gov.au>
- [2] Australian Government. Australian Institute of Health and Welfare. Rural health publications. <http://www.aihw.gov.au/rural-health-publications/>

## PROPOSED METHOD

### At each pharmacy:

- Generate a report from dispensary software which contains relevant information about dispensed drugs.
- Use customised software and an encryption process to remove identifiable patient information.
- Translate de-identified data into an Excel® spreadsheet. The dispensing record will include date, dose, and dosing instructions. Dispensed medicines should be identified by chemical and brand names and linked to an ATC code.
- Test protocol for extracting data from multiple pharmacy sites (Fig 2).
- Merge data from multiple pharmacy sites to create a dataset.

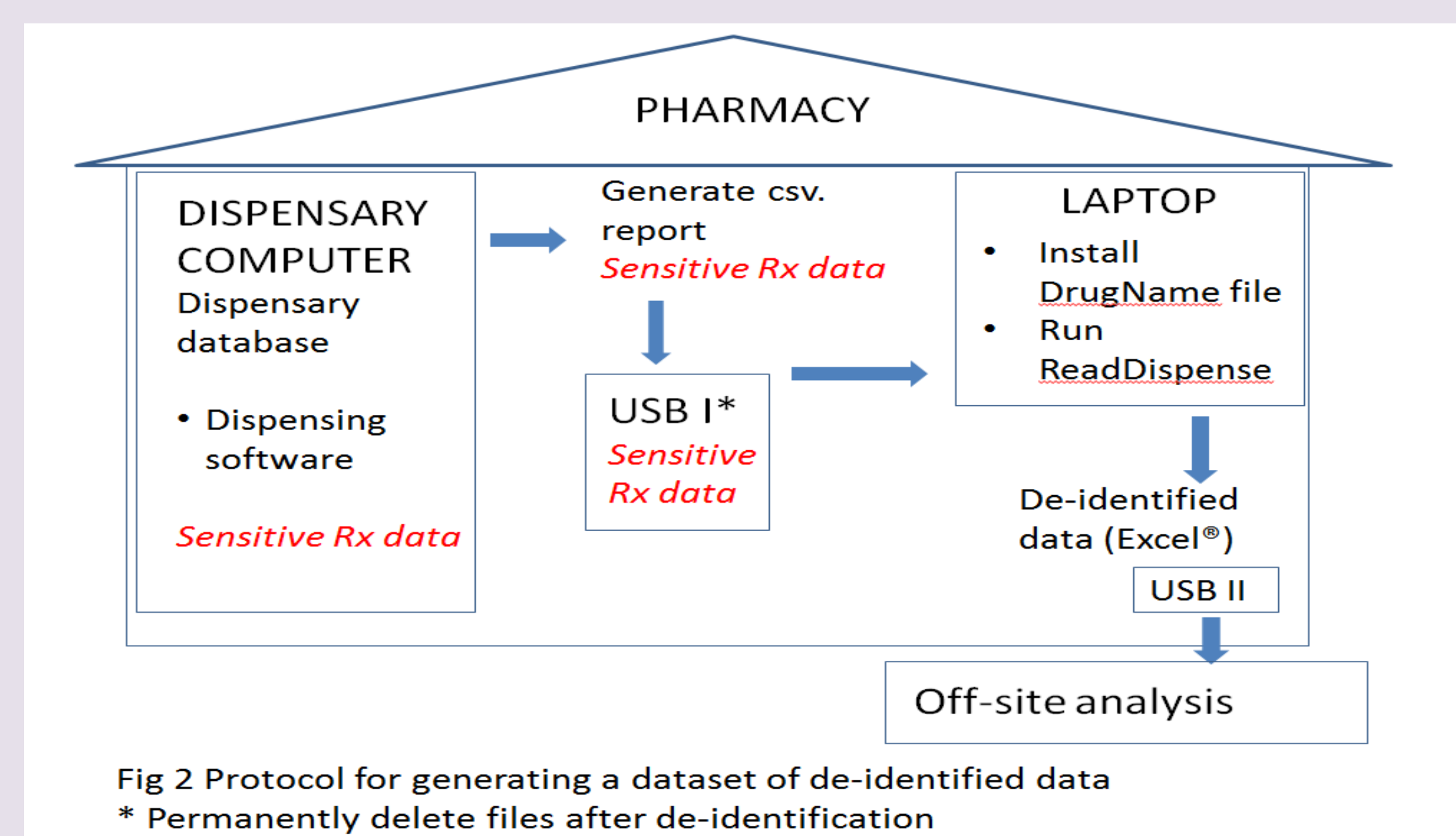


Fig 2 Protocol for generating a dataset of de-identified data  
\* Permanently delete files after de-identification

csv = comma separated values

### Considerations

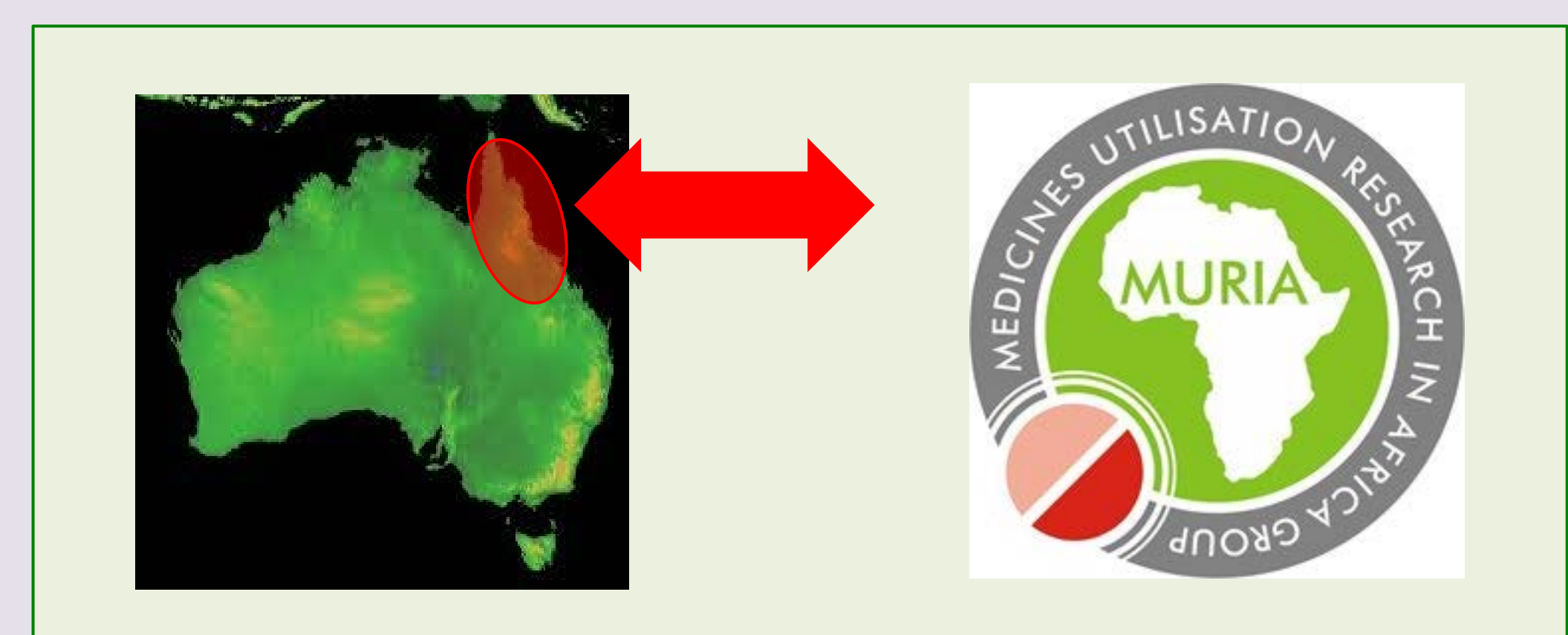
- The process will be based on experimental 'trial and error' and the protocol is likely to require refinement.
- Implementation should occur in stages to allow for modification.
- Each stage of the process must meet ethical standards for research and obligations to uphold patient privacy.

### Limitations

- Gender and date of birth are currently not available in the data and patient demographics are therefore limited to geographical location.

### Recommendations

- Use the dataset to conduct a study with significance to this geographical region, such as an investigation into the usage patterns of drugs with potential for misuse (e.g. benzodiazepines and opioids).
- Disseminate the findings and then leverage for funding to refine the data extraction software.
- Establish a medicines utilisation research (MUR) group in Australia and initiate cross-national collaborations with Medicines Utilisation In Africa (MURIA).



## CONCLUSION

Trans-disciplinary, collaborative research will be required to develop and refine a dataset in North Queensland for drug utilisation research.

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