Monitoring Health Workforce Migration

Methodological insights

"Health workforce mobility matters – Aggregated data and individual pathways hidden behind"

"Support for the h**E**alth workforce **P**lanning and forecasting **E**xpert **N**etwork" (SEPEN)

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The presentation covers

1. What can be learned from routine health workforce data?
   - Nationality and country of graduation of Ireland's non-consultant hospital doctor (NCHD) workforce
   - How Ireland uses international medical graduates
2. Methods for profiling and tracking the international medical workforce
3. The problems of professional registers – Ireland's nursing workforce.
4. Using routine data for decision-making: where are the obstacles?

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Background:

- Ireland's Health Service Executive (HSE) National Doctor Training and Planning (NDTP) Unit is tasked with monitoring Ireland's medical workforce.

- As in other countries, the Irish Medical Council has statutory responsibility for the registration of medical doctors and ensuring their fitness to practice.

- The RCSI health workforce research group was funded by the European Union through the WHO Brain Drain project to use routine data to generate a better understanding of the migration patterns of Ireland's health professional workforce (doctors and nurses).

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National Health Workforce Accounts Handbook: 5-03 Entry rate for foreign health workers

TABLE 1: Top nationalities of doctors (NCHDs) working in Ireland

Nationality	Number	Percentage of those working in public sector posts	Numbers graduated in own country	% of nationals who graduated in own country
Ireland	2177	49%	1979	91%
Pakistan	669	15%	592	88%
Sudan	266	6%	242	91%
India	164	4%	87	53%
Nigeria	134	3%	58	43%

Top nationalities

- Irish nationals represent less than half (49%) of NCHDs working in Ireland.
- 4 LMICs (2 Asian and 2 African) provide over one quarter (28%) of the NCHD workforce.
- 9 out of 10 Pakistani and Sudanese nationals trained in their own countries, compared with around half of Indians and Nigerians – more in Table 3.

Message: Ireland is highly reliant on non-national doctors to staff its hospitals.

TABLE 2: Country of Graduation of selected non-EU nationals working in Ireland

Nationality	Country where graduated	Number working in Ireland	Percentage of nationals working in Ireland
India (164)	India	87	53%
	Romania	36	22%
	Bulgaria	19	12%
	11 other countries	22	13%
Nigeria (130)	Nigeria	58	43%
	Hungary	28	21%
	Romania	20	15%
	Poland	15	11%
	Ireland	9	7%
	4 other countries	4	3%

Internationalisation of medical school training: many foreign doctors working in Ireland trained outside of their home countries – 1/3rd of Indians and almost ½ of Nigerians trained in a central European country. (Note also some Nigerians trained in Ireland)

TABLE 3: Nationalities of doctors working in Ireland who graduated from Irish medical schools

Nationality	Number of doctors working in Ireland *	Percentage of those working in public sector	Numbers trained in Ireland	% of nationals who trained in Ireland
Ireland	2177	49%	1979	91%
Malaysia	156	3.5%	130	83%
UK	96	2%	45	47%
Canada	59	1%	25	43%
Others	1650	44%	134	8%
Total	4138	100%	2313	56%

Nationality of graduates from Irish Medical Schools:

- 91% of Irish nationals and 8% of other nationalities working in Ireland graduated from Irish medical schools.
- Over 4/5ths of Malaysian doctors, and close to half of UK and Canadian nationals, working in Ireland graduated from Irish medical schools.

Message: Some of Ireland's non-EU graduates have stayed on to work in Ireland, or returned to Ireland later?

TABLE 4: Country of graduation of Irish nationals (passport holders) working in Ireland

Country where graduated	Number working in Ireland	Percentage of 2177 Irish doctors working in Ireland
Ireland	1979	91%
UK	65	3%
Sudan	23	1%
Pakistan	19	1%
Hungary	15	1%
Czech Republic	14	1%
Other 21 countries	62	3%

Internationalisation of medical school training:

- Traditionally, some Irish national have migrated to study medicine (usually to the UK). It may be that some are now migrating to Central European (Czech and Hungarian) medical schools for training.
- Are the 23 graduates from Sudanese medical schools and the 19 from Pakistani medical schools, who are Irish nationals (passport holders), those who gained Irish citizenship *after* moving to Ireland?

Table 5 Division of the Medical Council Register by Nationality (passport) EU

Country	Non-training scheme doctors Number (%)	Trainee Specialist doctors Number (%)	Total
Ireland	435 (20%)	1699 (78%)	2177
Romania	91 (71%)	17 (13%)	128
United Kingdom	35 (36%)	58 (60%)	96
Poland	7 (26%)	13 (48%)	27
Croatia	4 (20%)	6 (30%)	20
Total	622	1844	2579

- The highest proportion of doctors in the trainee specialist division are Irish – close to 80%. Trainees are on track to become permanent specialists or GPs
- The proportions of other European (EU) nationals in the trainee division range from a high of 60% (UK) to a low of 13% of doctors from Romania. Other Western and Central European EU countries (not shown) provide small numbers, ranging from 29% to 48% in the trainee division

Table 6. Division of the Medical Council Register by Nationality (passport): Non-EU

Country	Non-training scheme doctors Number (%)	Trainee Specialist doctors Number (%)	Total
Pakistan	534 (80%)	64 (10%)	669
Sudan	229 (86%)	36 (14%)	266
India	120 (73%)	30 (18%)	164
Malaysia	103 (66%)	52 (33%)	156
Nigeria	85 (63%)	48 (36%)	134
Egypt	91 (94%)	6 (6%)	97
Canada	27 (46%)	31 (53%)	59
Total	1402	365	1864

- Ireland recruits internationally, mainly from LMICs, to fill the non-training posts that Irish doctors won't work in. The largest numbers (883) are from Pakistan, Sudan and India. Between 63% and 94% of LMIC nationals are outside of training schemes.
- Many / most of the Malaysian and Canadian nationals came to Ireland to study medicine. Some / many of the Nigerian nationals migrated to Ireland at an earlier point and studied medicine in Ireland.

Table 7 Age at Retention (Quartiles) by Nationality (Non-EU)

Nationality	(Age Group)				
Frequency Row Pct.	< 28 Number (%)	28 – 31 Number (%)	31 – 36 Number (%)	➢ 36 ➢ Number (%)	Total
Ireland	796 (37%)	596 (27%)	463 (21%)	322 (15%)	2177
Pakistan	103 (15%)	198 (30%)	137 (20%)	231 (34%)	669
Sudan	37 (14%)	49 (18%)	56 (21%)	124 (47%)	266
India	21 (13%)	28 (17%)	41 (25%)	74 (45%)	164
Malaysia	29 (19%)	55 (35%)	44 (28%)	28 (18%)	156
Nigeria	23 (17%)	31 (23%)	30 (22%)	50 (37%)	134

NCHD Nationals of non-EU countries, who are mainly in non-training scheme posts, are generally older than Irish NCHDs.

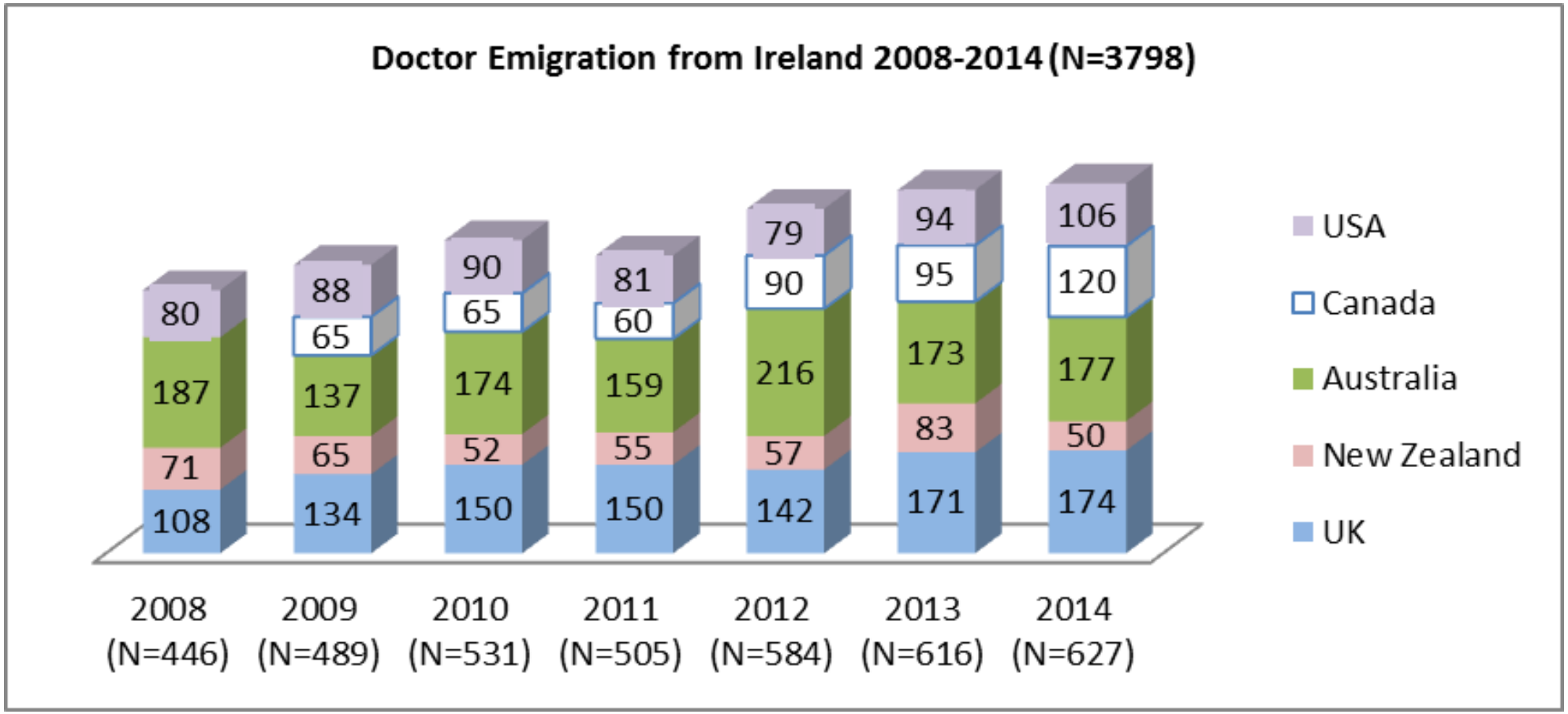
Message: Non-training scheme doctors from LMICs get good salaries compared with their countries of origin. However, there are disadvantages to these posts, in addition to lack of career prospects. The post-holders have short contracts that necessitate them uprooting their families (taking their children out of school) to move them around the country every 6 or 12 months.

Table 8: Age category of doctors exiting the Medical Council Register, 2014–2015

NHWF Accts indicator 5.04

Age	Exit rate 2014								Exit rate 2015							
	Irish medical school		EU medical school: EU national		EU medical school: non-EU national		Medical school outside EU and Ireland		Irish medical school		EU medical school: EU national		EU medical school: non-EU national		Medical school outside EU and Ireland	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
25–34	157	6	74	16	28	9	48	8	191	6	107	19	50	11	79	9
35–44	131	4	54	10	5	5	113	8	107	4	80	13	21	15	129	9

Other sources of data: registration data other countries



Doctor Migration from Ireland 2008-14 (N=3798): " professional registration and/or immigration data …."
Niamh Humphries, ….. and Ruairi Brugha. *The consequences of Ireland's culture of medical migration*
Human Resources for Health. 2017

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CONCLUSIONS

Much can be learned from analyses of medical workforce (health workforce account) data – however measures of nationality are difficult to interpret because of

- multiple nationalities and doctors make decisions around which nationality to declare; and
- declared nationality may change if the doctor acquires citizenship in the destination country;

Important to measure and distinguish country of training from nationality / country of birth.

There is some evidence of new trends in the internationalisation of medical training, where nationals from Pakistan, India and perhaps Ireland graduate from central European medical schools and then migrate to Ireland, though caution is required in interpreting workforce data.

Foreign-trained doctors are highly mobile (international recruitment is a short-term solution to shortages); and other (non-Irish) EU nationals appear the most mobile of all – not necessarily a problem

Medical council data from other countries is a source of limited routine data on exits from the workforce *

The data are from 2015 and were linked in 2016. Data linkage that was feasible prior to the introduction of the 2018 General Data Protection Regulation is now more difficult.

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* We have also used longitudinal tracking studies (repeat surveys of the same doctors) and social media approaches to survey and collect data from Irish trained doctors who have emigrated

2. Method – profiling the medical workforce

- From 2011, Ireland's NDTP (national doctor training and planning unit) started to capture a minimum dataset on NCHDs working in public sector posts, through requiring these doctors to enter data into a National Employment Record, as they moved from hospital to hospital, 6- or 12-monthly.

- The NDTP database, maintained by Ireland's national Health Service Executive, includes doctors' Medical Council registration number, the unique identifier for each doctor.

- Nationality (passport) and country of medical graduation are fields with high completion rate on the medical council register, but were less complete on the NDTP database. Consequently, RCSI undertook a linkage of these two datasets in 2016 as part of the WHO Brain Drain project.

- Improvements in the NDTP medical workforce database should mean no longer needing to link data, using the medical council database. However, future analyses using the registration number will be problematic . . . .

- Data linkage involved working with databases, with different structures and that were maintained for different purposes, with a view to creating an anonymised linked dataset. This was undertaken before the 2018 General Data Protection Legislation came into force . . . . (more anon)

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2. Method – profiling the nursing workforce

- HSE (nurse and midwife workforce) annual census data (numbers) have been reported for the period, 2007-16
  - but characteristics, e.g. nationality and country of training, not reported (not available?)

- Registration data from Nursing and Midwifery Board of Ireland (NMBI) annual reports, 2007-15
  - Requests from us for a limited dataset for us to analyse were unsuccessful
  - Individuals and individuals' separate qualifications registered

- Applicants for NMBI registration, contained in annual reports, distinguish non-Irish EU, non-EU and Irish-trained applications. We reviewed annual reports for the years 2007 through to 2014 (see Table),
  - Individuals apply to have their names registered in more than one division of the register
  - NMBI reports in 2015-16 did not report numbers of applicants However, the NMBI website reported a 98% increase in new overseas registrations in 2016, which at 2,055 exceeded the numbers of Irish-trained applicants (1,822) and was the highest in 5 years.

- Top 5 countries (EU and non-EU) of new EU NMBI registrants were reported in annual reports, 2007-15
  - Quantification (numbers of registrants) was last reported in 2012 – see Table

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Table 9. Applications received by NMBI for registration, 2007–2014

Year	2007	2008	2009	2010	2011	2012	2013	2014
Irish-trained applications	1 805	1 918	1 913	1 952	2 042	2 200	1 548	1 603
EU (non-Irish) applications	1 446	1 088	455	497	533	545	503	614
Non-EU applications	1 577	845	302	409	479	430	394	431
Total	4 828	3 851	2 670	2 858	3 054	3 175	2 445	2 648

Source: NMBI annual reports *(8–14)*.

Note: The NMBI website reported 2,055 applicants in 2016, a 98% increase in new overseas registrations from 2014 or 2015(?). EU (non-Irish) and non-EU application in 2014 were: 1045. The website reported almost 1,000 registration applications from overseas nurses and midwives by end of April 2017, x 3 times for the same period in 2016.

Table 10. Top five countries of training of new EU registrants per year (nurses and midwives), 2007–2015

#	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	UK (676)	UK (574)	UK (277)	UK (211)	UK (170)	UK (149)	UK	UK	UK
2	Poland (124)	Poland (123)	Poland (37)	Poland (16)	Poland (22)	Portugal (57)	Portugal	Poland	Poland
3	Germany (84)	Germany (67)	Italy (20)	Lithuania (13)	Romania (14)	Spain (14)	Spain	Spain	Romania
4	Lithuania (30)	Portugal (59)	Germany (15)	Spain (10)	Portugal (9)	Romania (11)	Romania	Romania	Portugal
5	Finland (25)	Romania (22)	Portugal (13)	Germany (9)	Spain (6)	Germany (8)	Poland	Portugal	Spain
	+ 13 other countries	+ 18 other countries	+ 14 other countries	+ 13 other countries	+ 11 other countries	+ 19 other countries	+15 other countries	+ 14 other countries	+ 15 other countries

Source: NMBI annual reports *(8–14)*. Note: no quantification of numbers after 2012

Table 11. Top five countries of training of new non-EU registrants per year (nurses and midwives), 2007–2015

#	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	India (1868)	India (295)	India (71)	India (13)	India (49)	India (82)	India	India	India
2	Philippines (195)	Philippines (94)	Australia, Philippines (17 each)	Philippines (11)	Philippines (12)	Nigeria (32)	Nigeria	Philippines	Philippines
3	Australia (49)	Australia (68)	New Zealand (9)	USA (5)	USA (2)	Philippines (20)	USA	Nigeria, USA	Nigeria
4	Nigeria (46)	New Zealand (22)	Nigeria, South Africa, USA (8 each)	Australia, New Z, Nigeria (4 each)	Australia, Iran, Russia, South Africa (1 each)	USA (11)	Philippines, Zimbabwe	Australia	USA
5	New Zealand (27)	Nigeria (18)	China (3)	S Africa, China Kenya, Canada (1 each)			Australia	Pakistan	Australia

Source: NMBI annual reports *(8–15)*. Note: no quantification of numbers after 2012

Table 12. Inactive nurses and midwives registered with NMBI, 2007–2015: reasons for inactivity

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Retired	7 057	7 676	8 410	9 549	10 472	11 218	12 505	13 304	13 543
Working abroad	**5 122**	**5 312**	**5 679**	**6 172**	**6 513**	**6 945**	**7 705**	**8 119**	**8 302**
Career break	2 026	2 077	2 107	2 212	2 227	2 251	2 373	2 425	2 417
Unemployed	791	827	906	994	1 013	1 052	1 128	1 150	1 140
Other	3 541	3 718	3 919	4 188	4 345	4 372	4 595	4 816	4 931
Total	18 537	19 610	21 021	23 115	24 570	25 838	28 306	29 814	30 333

Source: NMBI annual reports *(8–15)*.

Table 13. CCPS * requests (nurses and midwives) to NMBI, 2007–2015

Country/CCPS	2007	2008	2009	2010	2011	2012	2013	2014	2015
United Kingdom	163	272	630	829	725	727	963	743	547
Australia	1 641	4 896	1 963	415	1 214	770	643	349	340
Canada	158	282	410	166	173	136	129	77	51
USA	117	88	84	81	111	77	67	64	78
New Zealand	44	55	61	54	41	58	*	*	*
Other countries	45	30	45	30	119	97	145	167	163
Total	2 168	5 623	3 193	1 575	2 383	1 865[a]	1 947	1 400	1 179

Source: NMBI annual reports *(8–15)*. * For 2013-2015, only the top 4 countries are listed in the reports

Finally

"High quality, complete and timely data, information and analysis are required to inform decision-making . . . . link(ing) up the workforce planning, research and policy community in Ireland"

Working Together for Health. A National Strategic framework for Health and Social Care Workforce Planning. Department of Health, 2017.

Workforce data can be powerful – if analysed (reporting problems and obstacles) and if utilised . . . . Are we investing in the staff to analyse the data? Do decision makers value, prioritise (want?) data?

The more evidence we accumulate, the more difficult it is to keep track and make use of it, so let's be judicious and then be rigorous and consistent

Ireland's HSE National Doctor Training and Planning has made great strides, for other sectors of the HSE to follow; and yet duplication occurs when we forget or neglect what we have.

The Holy Grail, lies in longitudinal year-on-year tracking of health workers in national datasets, from workforce entry to exit, using a unique identifier such as the professional registration number.

However, the 2018 General Data Protection Regulation is a potential obstacle.

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Questions for participants

- What routine national health workforce data are **collected** in your country?
  - *Who*: for which cadres of health professionals / health workers?
  - *What*: do the reports specify country of birth or nationality?; and country of training? What associated data are reported, eg specialty and type of post (permanent or temporary) occupied by foreign born / foreign trained health workers?
  - *How*: are the data reported annually? In a timely way? Is there consistent / complete presentation of data over time? Can you show trends over time?

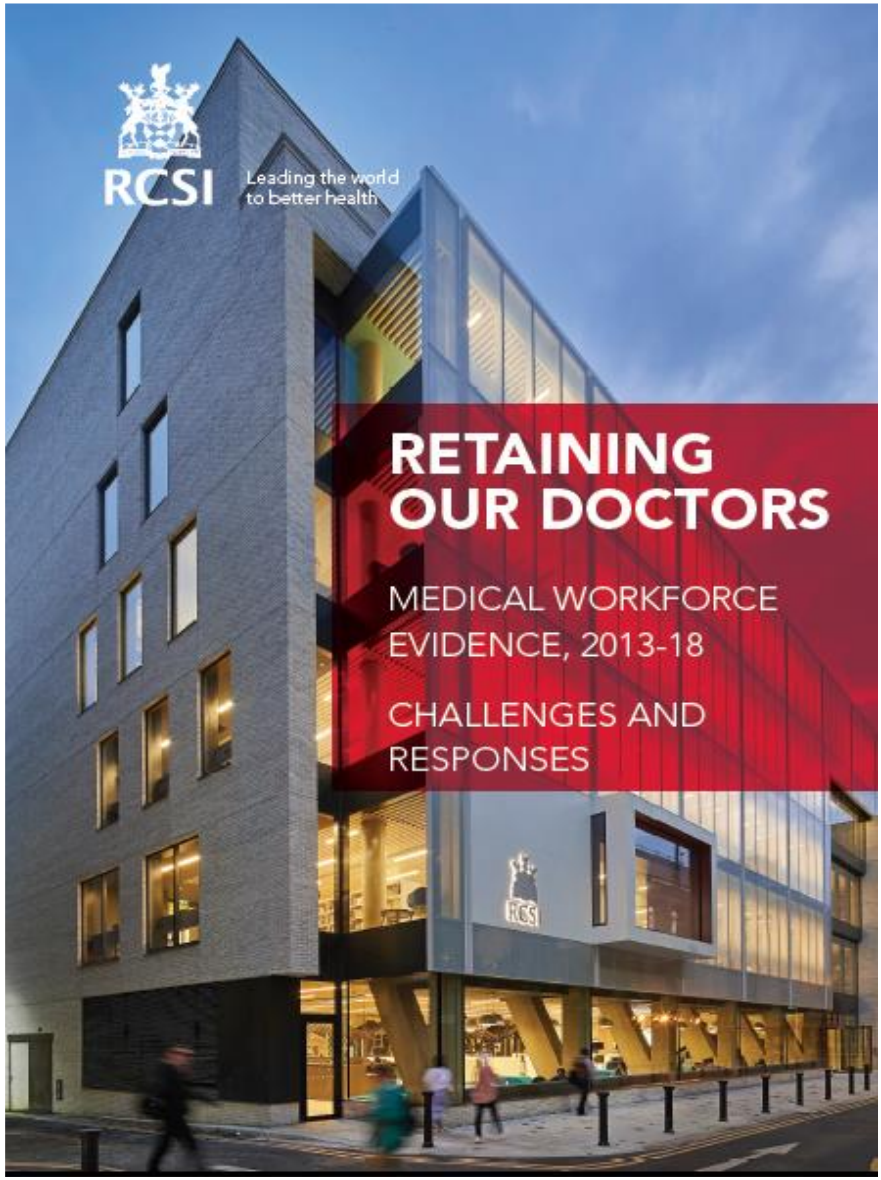
- Can you access the datasets for secondary **analysis**? Can you access and analyse individual anonymized data, or just aggregated data? Is there a unique identifier for individual health workers, such as a professional registration number to allow data linkage. What are the obstacles to doing data analysis?

- Are routine health workforce mobility data **used** to inform national decision making?

  What national health workforce data are underutilized? What are the obstacles?

Further evidence on medical retention and migration into and out of Ireland

See: http://www.healthworkforceireland.com/ for outputs / publications.
For policy responses for retaining the doctors that Ireland trains, see *Retaining Our Doctors: Medical Workforce Evidence, 2013-18* on: www.healthworkforceireland.com



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The HSE National Doctor Training and Planning (NDTP) and Irish Medical Council (IMC) provides access to their datasets to enable the analyses presented here.

Dr Aisling Walsh (RCSI) summarised the NDTP and Medical Council data
Dr Aisling Walsh (RCSI) and Professor Anne Matthews (DCU) summarised the NMBI data
Pat Dicker (RCSI) undertook the NDTP Medical Council data linkage analysis

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