Rapid summary

Questions:

- How could a sufficiently large and appropriately skilled workforce be recruited and trained to deliver vaccination?
- How could healthcare students and retired healthcare professionals be mobilised?
- Are some approaches better than others?

We found very little research evidence on how a workforce to deliver mass vaccination might be recruited and trained. Thirteen sources broadly relevant to these three questions were identified; the majority were descriptive case studies

Recruitment

Mass emails, personal invitation and website advertisements have been used to recruit student and medical volunteers to undertake vaccination in the USA and COVID-19 testing in Switzerland but we found no information on how effective these approaches were[1, 2, 3].

In Wales, retired staff can register to re-join the NHS via the Welsh Government website[a].

In the USA the Medical Reserve Corps (MRC)[b], a national network of locally organised volunteers, which includes medical and public health professionals and community members without medical backgrounds, can be mobilised to support mass vaccination[1, 4].

In the UK the Chartered Institute of Environmental Health (CIEH) has established a register of people willing to volunteer to support services in the UK during the coronavirus pandemic[c]. This includes people with public health and administrative skills currently working in the private and business sectors[5].

Staff needed to support mass vaccination may be paid or volunteers and include greeters, traffic directors, form reviewers and supply runners. An example from a school-based clinic in the USA estimated that four non-medical staff members are needed per vaccinator[6].

Where student volunteers are used, rotating students through the clinic or using four hour (or half day) shifts might encourage volunteering[3, 7].

[a] https://gov.wales/register-rejoin-nhs
[b] https://www.phe.gov/about/oem/prep/Pages/mrc.aspx
[c] https://www.cieh.org/policy/coronavirus-covid-19/coronavirus-volunteering/

Rapid summary

Training

Case studies, mainly from the USA, suggest that volunteer health care students, including nursing, medical and pharmacy students, can be trained to vaccinate using just-in-time training[d] approaches[2-4, 7-10].
Just-in-time training has also been used in simulation exercises in the USA to train MRC dentist and dental hygienist volunteers to administer vaccinations and other roles needed for point of dispensing (POD) models[11].

One small non-randomised study compared the effectiveness of in-person immunisation training of pharmacists with a train the trainer model using the same materials. There was no significant difference in the number of vaccinations delivered or self-reported staff confidence[12].

A randomised pilot study compared traditional training for pharmacy students in administering paediatric influenza vaccine with just-in-time training. No vaccines were given; administration was simulated. There were no significant differences due to mode of training in self-reported comfort, confidence or evaluated competence (blind to training)[13].

Method

A search (June 2020) of databases and grey literature and screening (details available on request) identified 13 articles. Screening and data extraction were undertaken by a single reviewer, a second reviewer checked the data extraction. No critical appraisal of the included sources was undertaken. Only sources from OECD countries were included.

Table 1 below includes links to some examples of training materials and other resources relevant to staff recruitment and training.

Table 2 includes details and a summary of the content of the sources used.

Limitations

This summary may be useful to identify key points on the topic. However, the included research has not been assessed for quality and comes from a wide range of published material.

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[d] Used in medical education for new or seldom performed procedures. https://connect.springerpub.com/content/sgrnn/34/1/6

TABLE 1: TRAINING AND STAFFING RESOURCES

What	Link
Guidance on immunisation training guidance during the COVID-19 pandemic. Public Health England. 26 June 2020	https://www.gov.uk/government/publications/immunisation-training-guidance-during-the-covid-19-pandemic/guidance-on-immunisation-training-during-the-covid-19-pandemic This contains information on: The importance of maintaining the immunisation training standards Immunisation training during the pandemic Training for those new to immunisation Supervision and assessment Remaining up to date Currently available training Accessing expert advice
e-learning programme designed in line with the recommendations made in National Minimum Standards and Core Curriculum for Immunisation Training for Registered Healthcare Practitioners. e-learning for Healthcare, Health Education England	https://www.e-lfh.org.uk/programmes/immunisation/ This programme has seven modules: National Immunisation Policy and Programmes Immunology Vaccine Preventable Diseases Communicating with Patients, Parents and Carers Legal Aspects Vaccine Storage Vaccine Administration
Point of dispensing just-in-time training materials from Alameda County POD training, USA	http://www.acphd.org/phep/podtraining.aspx Overview for all site personnel Leadership

What	Link
	Command Operations Logistics/planning Operations (vaccinations) Logistics (vaccination) Operations clinical staff (vaccination)
World Health Organisation Vaccine safety basics – e learning course [Available online and via a downloadable manual]	https://vaccine-safety-training.org/home.html Aims to establish shared understanding of vaccine safety issues among healthcare professionals. Includes six modules each taking about 1 ½ hours to complete. Includes case studies and assessments. Module 1: Introduction to vaccine safety Module 2: Types of vaccine and adverse reactions Module 3: Adverse events following immunisation Module 4: Surveillance Module 5: Institutions and mechanisms: Module 6: Communication
Orange County Health Care Agency training series, California USA POD training videos	Introduction to Point of Dispensing sites https://www.youtube.com/watch?v=25BI2Ld7u8o&feature=youtu.be%20 Command section https://www.youtube.com/watch?v=zN04MpUo9YI&feature=youtu.be%20 Operations Section https://www.youtube.com/watch?v=CrSReYe_Yeo&feature=youtu.be%20 Logistics section https://www.youtube.com/watch?v=3cy4lLuSXo4&feature=youtu.be%20 Planning section https://www.youtube.com/watch?v=BVO6AipTkgw&feature=youtu.be Management video for supervisors https://www.youtube.com/watch?v=UtlMRZ0W7JI&feature=youtu.be

What	Link
	Keys To Success Clinic branch https://www.youtube.com/watch?v=AoKAgI7dNFc&feature=youtu.be Delivering a POD briefing https://www.youtube.com/watch?v=HmzJYNwAKIc&feature=youtu.be Health Care Agency unified command https://www.youtube.com/watch?v=_tkP0Di7TIA&feature=youtu.be Setting up a POD site https://www.youtube.com/watch?v=GcPXhfGOLsA&feature=youtu.be Supply Unit https://www.youtube.com/watch?v=3QQkYE34HNY&feature=youtu.be
CDC guidelines for large-scale influenza vaccination clinic planning CDC Vaccine storage and handling toolkit CDC Large-scale vaccination clinic output and staffing estimates: an example (2009) Outline for planning and operating a large-scale influenza vaccination clinical (2009) Guidelines for large scale novel H1N1 influenza vaccination clinics (2009)	https://www.cdc.gov/flu/professionals/vaccination/vax_clinic.htm#resource https://www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf https://www.cdc.gov/h1n1flu/vaccination/pdf/A_Wortley_H1N1_sample_clinic.pdf https://www.cdc.gov/h1n1flu/vaccination/pdf/B_Wortley_H1N1_guidelines_vaccination.pdf https://www.cdc.gov/h1n1flu/vaccination/pdf/D_Wortley_H1N1_guidelines_pandemic.pdf
Contra Costa Health Services. Mass vaccination point of dispensing walk-through clinic. Field operation guide. 2010.	Includes a list of staff roles needed to establish mass vaccination walk through POD https://cchealth.org/massvac/pdf/pod_fog.pdf

What	Link
Canadian Pandemic Influenza Preparedness: Planning Guidance for the Health Sector. Vaccine annex. March 2017	Link to section on training https://www.canada.ca/en/public-health/services/flu-influenza/canadian-pandemic-influenza-preparedness-planning-guidance-health-sector/vaccine-annex.html#appb2.3.4 Link to PDF version https://www.canada.ca/content/dam/phac-aspc/migration/phac-aspc/cpip-pclcpi/assets/pdf/annex-d-2017-eng.pdf

TABLE 2: SUMMARIES OF SOURCES

The tables below summarise the source, its' content and any considerations or limitations.

Source	Summary of content	Limitations/considerations
1. Cummings GE et al. Successful use of volunteers to conduct school-located mass influenza vaccination clinics. Pediatrics 2012; 129 (S2): S88- S95 Available here Descriptive case study: Maryland, USA	This describes an influenza vaccination programme (in a public elementary school) set up and delivered predominantly by medical and lay volunteers. Medical volunteers (2-4 per school), already licensed to administer vaccines, were recruited from local hospitals, the Baltimore Schools of Nursing, Medicine and Pharmacy and the Medical Reserve Corps. Recruitment primarily via personal communication from members of the planning committee and by invitations posted on the Maryland State Board of Nursing website. Lay volunteers: 2-3 parents/staff per school.	No information on how effective the method of recruitment was
2. Klassen JM et al. SWAB team instead of SWAT team: Medical students as a frontline force during the COVID-19 pandemic. Medical Education. 2020; 00:1-2 Available here Descriptive case study: Basel, Switzerland	Describes recruitment of medical students to swab people for COVID-19 testing. Students from Years two to six asked to volunteer via email. Given a working contract with appropriate insurance. Specific teaching curriculum developed by the Corona Task Force (it is not clear what this is). Covered history taking, nasal and oropharyngeal swabbing, social distancing, disinfection, hygiene, self-protection and handling of PPE. Teaching provided daily on the spot by one clinician who remained on site as a supervisory team member. From 9 March to 15 April 2020 the medical students provided over 6700 swabs. No members of the student team showed symptoms of COVID-19	No information on the response rate from the students who were asked to volunteer
3. Lawrenz J et al. A community outreach influenza vaccination drive as a model for mass disaster	Describes an influenza vaccination campaign delivered at five point of dispensing (POD) sites.	Evaluation was via debriefing.

Source	Summary of content	Limitations/considerations
prophylaxis. American Journal of Disaster Medicinel. 2013; 8(4): 287-292 Available here Descriptive case study: Illinois, USA.	All healthcare schools in the area asked to participate. The dean/chairman/director were contacted (does not say how) and they suggested which faculties in their institution might be interested in participating. Health student volunteers were recruited via mass email (second year medical, first, second and third year pharmacy and nursing students). One week before the vaccination event just-in-time training delivered in a 2-hour session to preclinical medical and pharmacy students who had not previously had instruction in immunisation. A faculty member from each institution was present at each site where its students participated. Influenza vaccination administration and health screening was delivered by students under faculty supervision. Study authors felt that providing four-hour morning and afternoon shifts for the volunteers maximised volunteer participation of both students and their supervisors. They also suggested that a formal volunteer database would be useful to support future events.	
4. Kilianski A et al. The planning, execution and evaluation of a mass prophylaxis full-scale exercise in Cook County, IL. Biosecurity and Bioterrorism: Biodefense Strategy, Practice and Science. 2014.; 12(2)	Describes an exercise based on a simulated anthrax bioterrorism attack run by a local department of public health and Medical Reserve Corps (MRC). On arrival at the point of dispensing (POD) all staff received a briefing on the incident and just in time (JIT) training on their specific role (security, clinical or clerical). Clinical roles taken by MRC volunteers with relevant experience (doctor, nurse or pharmacist). Participant briefing and JIT training took one hour 30 minutes.	POD was anthrax prophylaxis not vaccination. No information of the content of the JIT training. Recommendations for improvement based on debriefing used to evaluate POD operation.

Source	Summary of content	Limitations/considerations
Descriptive case study: POD simulation exercise, Cook County, Illinois, USA Available here Descriptive case study: Simulation, Illinois, USA.	All involved had received comprehensive training prior to the exercise but this is not described. Paper authors concluded that the JIT training was effective, but should be supplemented with concise job- and duty-specific background information. They recommended that future training sessions include a walk -through of the clinic at the start of each shift to orientate staff to their roles and station location within the POD. They further recommended that specific POD training be added to the MRC training curriculum.	
5. Mahase E. Covid-19: environmental health officers and retired doctors step up to fill contract tracing void. BMJ 2020;369:m1638 doi: 10.1136/bmj.m1638 Available here News report: UK	Over 400 people (published 24 April) signed up to the Chartered Institute of Environmental Health (CIEH) voluntary register in England, Wales and NI. (Details made available to Welsh Government) Initially the register was for those volunteering to be involved in contract tracing however, this is now done via the NHS professionals website. The CIEH register includes those with administrative and public health skills who work predominantly in the private and business sectors. https://www.cieh.org/policy/coronavirus-covid-19/coronavirus-volunteering/	
6. Jenlink CH, Kuehnert P, Mazyck D. Key components of a school-located vaccination clinic: lessons learned from Fall 2009. The Journal of School Nursing. 2010; 26(S1): 14S – 26S Available here	Describes setting up a school vaccination campaign. Reports that local health departments recruited medical and non-medical staff from a variety of places including staffing agencies, nursing students, staff from local nursing schools and nurses living in the communities where vaccination took place. Those recruited were both paid and volunteers. One health department estimated that four non-medical staff would be needed per vaccinator and recruited from law enforcement, school staff and parent volunteers.	No description of how staff were recruited

Source	Summary of content	Limitations/considerations
Descriptive case study: USA.	These non-medical staff were recruited as greeters, traffic directors, form reviewers and supply runners.	
7. Adams LM, Canclini S, Tillman K. "This is not a drill": Activation of a student-led influenza vaccination point of dispensing. Journal of American College Health. 2019; 67(2): 88-91 Available here Descriptive case study; Texas, USA.	Describes point of dispensing (POD) clinic in response to a flu outbreak on a university campus flu. Senior nursing students were the primary workforce, academic nursing staff acted as both supervisors and vaccinators. The College of Nursing and Health Sciences routinely offered an annual flu immunisation clinic on the campus. This was staffed by junior and senior (not otherwise defined) nursing students given just-in-time (JIT) training delivered by senior nursing students who were taking a public health nursing course. The training included • Mechanics of gloveless intramuscular injection (siting, administration, response to oozing blood) • Recognition and response to an adverse reaction • Use of ammonia snaps (ammonia inhalant) and EpiPens After training each student volunteer gave an IM injection to a peer and received an injection themselves. In setting up the POD the academic nursing staff delivered the JIT training and supervised the students. Minimum four supervisors to verify correct consent to vaccinate, correct completion of all paperwork, priming and vaccine safety, observation of students administering the vaccine and monitoring for adverse reactions. To run six vaccination stations eight students were needed to vaccinate, two to three to obtain consent, three to four to prime and one to two to observe and stock supplies. Whilst clinic was in operation, six students at a time were also being trained in a separate area by other students.	No information on how the volunteers were recruited or indemnity arrangements

Source	Summary of content	Limitations/considerations
	The POD ran over three days, for three to six hours daily and delivered 951 doses of the vaccine. Students rotated in and out of the POD. Lessons learned via debriefing were • Need for correct paperwork and ensuring the students were aware what paperwork was needed • Reminding vaccinators to ask pre-administration questions • A particular concern was students attempting to give the vaccine too high or too low - they cleaned the proper site but allowed the point of the needle to drop or elevate at the point of insertion – this had not been seen in the annual clinic where students had more time to prepare, supervisors noted that students were less confident in the POD than in the annual clinic and had to reteach the technique whilst students were vaccinating Five reports of arm pain following the POD investigated – vaccine and formulation, vaccination location and needle length were identified. The JIT training was altered to include • Vigorously shake the vaccine prior to administration • Verify the correct site using CDC recommendation of hand on hip method • Use 5/8 inch needle for very small consumers	
8. Banh HL. Alberta pharmacy students administer vaccinations in the University Annual Influenza Campaign. Canadian Pharmacists Journal 2012; 145(3): 112-114 Available here	Describes project to certify third-year pharmacy students to give drugs by injection (18 months before able to register as clinical pharmacists). To practice and maintain students' skills they were involved in an annual flu campaign. Fifty students (by this time in their 4th year) took part supervised by 10 community pharmacists, also certified to administer drugs by injection. Before clinic day given information on influenza and the vaccine, correct handling of needles and accidental needle stick protocol.	Case report – no evaluation. Does not describe recruitment of the students, the training required, the process for certifying them to administer drugs by injection or indemnity arrangements

Source	Summary of content	Limitations/considerations
Descriptive case study; Alberta, Canada.	On the day of the clinic they were given orientation that included: • Patient education on influenza vaccine • Obtaining consent • Proper handling of vaccine • Proper administration techniques Before the clinic opened they given the opportunity to obtain consent from and give the vaccine too their fellow students. In the clinic they undertook three roles • Pre-clinic area – filling out forms and answering questions about the vaccination • Vaccination area - obtaining consent and administering the vaccine • Post-clinic area – monitoring for adverse reactions for 10 minutes and answering questions In two days the students delivered 330 doses of vaccine to university staff and students.	
9. Cathcart LA et al. An efficient model for designing medical countermeasure just-in-time training during public health emergencies. American Journal of Public Health. 2018. 108(53)S3: S212-214 Available here Descriptive case study: CDC, USA	Describes the development of two just-in-time training templates to train staff in medical countermeasures (MCM), one of which was a point of dispensing (POD) essentials course. The POD essentials course had five modules with flexible templates that could be customised to allow instructors from state and local health departments to rapidly deliver customised training. Materials included presentations, discussions and hands-on activities with guides to help instructors customise them to include POD layouts, policies and materials including job action sheets, health forms and signage.	Little detail on the actual content of the training programme, how it should be delivered or the time required to deliver training. No evaluation reported for the POD essentials courses. These resources do not appear to be accessible

Source	Summary of content	Limitations/considerations
10. Hayes A et al. Fostering inter-professional education through a multidisciplinary, community based-based pandemic mass vaccination exercise. American Journal of Public Health. 2018; 108(3): 358-360 Available here Descriptive case study:- exercise in Rockford, Illinois, USA	Describes a pandemic planning exercise used to provide healthcare and immunisations to uninsured and underserved populations. Involved pharmacy, medical and nursing student volunteers from four colleges and universities. Web-based or onsite just in time training designed by the student leaders was used to prepare for vaccination. This covered event rationale, work-flow logistics, instructions on immunisation and screening techniques, blood borne pathogen safety and defined the roles of all those staffing the event. Vaccination given by medical, nursing and fourth-year pharmacy, students. Training and vaccination events supervised by academic staff.	No detail on recruitment, no description of training. Evaluated on the basis of growth of sites not effectiveness of training or number of adverse events
11. Colvard MD et al. Just-in-Time training of dental responders in a simulated pandemic immunization response exercise. Disaster Medicine and Public Health Preparedness. 2014 DOI:10.1017/dmp.2014.44 Available here Descriptive case study: - simulation, Illinois, USA.	Use of just in time (JIT) training using an ex vivo porcine (pig) model for local dental responders in a simulated influenza pandemic situation. Aims included validating dental professionals as an emergency resource and JIT mass vaccination training. Simulation involved ten command professionals (not otherwise defined), 15 dental responders as vaccinators (eight hygienists, seven dentists), 15 public health nurses and regional emergency response coordinators acting as evaluators and 15 logistical personnel. The dental professionals were volunteers from the local County Medical Reserve Corps directory. JIT training took place around 35 minutes before the drill started. This involved a video (approximately 15 minutes) describing inoculation techniques. The specific protocol for vaccination reviewed as a group. Vaccinators had approximately 15 minutes to review the drill protocol and practice their injection technique. During the training certified public health nurses and emergency response coordinators answered questions and provided feedback and hands-on assistance.	Simulation – vaccinators did not administer any vaccine

Source	Summary of content	Limitations/considerations
	Drill limited to one hour of injection time. 120 participants acted as patients. Vaccinators were given pre-scripted vaccination records (VAR) for child and adult patients and 2 mock vaccines and were required to select the correct vaccine based on the age of the patient as indicated on the VAR. Evaluators remained at the stations to document errors and monitor throughput but did not provide hands-on guidance during the drill. Throughput was set at least 18 patients per vaccinator and an error rate of less than 5% (these set based on previous exercises with certified public health nurses). During the 1 hour drill, 335 mock vaccinations were administered, a mean throughput of 22.33 per hour for each vaccinator. Three vaccinators had a negative effect on the average throughput; one missed the group based JIT and instead received condensed individualised JIT training; one was retired and no longer actively practised dentistry and the third was considered to have talked extensively with patients. The error rate was 2.08% (7 of 335). Three errors were incorrect vaccine dosages and four from incorrectly labelled VARs.	
12. Lin JL et al. Comparison of two training methods in community pharmacy: Project VACCINATE. Journal of the American Pharmacists Association. 2018; 58: S94-S100 Available here Non-randomised study: Seattle, USA	Compared the impact of a whole-staff training with train-the-trainer. Outcomes were number vaccines administered by community pharmacists to adults, staff confidence and fidelity to the intervention. Participants were pharmacists and technicians from eight grocery store pharmacies. (Project VACCINATE was Value-based Community Collaborations to Increase Adult Vaccinations and Emergency Preparedness). Entire staff from four pharmacies received whole staff training; other four used the train the trainer. Whole staff training was a two-hour session delivered in person.	Little detail on what the training entailed. Small study. Not clear how different the two training approaches were in practice. Differences between the two conditions not tested for statistical significance.

Source	Summary of content	Limitations/considerations
	In train the trainer, one pharmacist and one technician champion attended 2 hour in person session. (Champions identified by staff of each pharmacy as team members best suited to train rest of pharmacy staff). After receiving the training returned to pharmacies and trained remaining staff. Training session included introduction to project VACCINATE, demonstration of the ImmsLink (a platform that facilitated forecasting of the patients immunisation needs and documented vaccines delivered in the state registry). Cases were used to supplement training. Pharmacists practised discussing vaccine needs with those who were resistant or hesitant, observed by a trainer who gave feedback. In the train the trainer condition pharmacists and technicians used the material from the training in their own pharmacies. Additional training given in both conditions for further key skill development and to account for staff turnover and changes (two changes in whole staff training group and five in train the trainer). Each pharmacy also received two 20 to 30 minute conference calls to answer questions and reinforce key concepts. Pharmacies could also request a project VACCINATE trainer to come to the pharmacy to help train or retrain new or existing staff. The four pharmacies from each training group matched according to their year-to-date vaccine sales, their average non-flu vaccines administered weekly, and their year-to-date progress on non-flu vaccine goals. Differences in the number of vaccines administered, staff confidence reported and fidelity to the intervention processes evaluated. Number of vaccines administered obtained through the dispensing platform for 3 months after training. Number of vaccines administered during the same period in the previous year used to calculate	

Source	Summary of content	Limitations/considerations
	percent change in number of vaccines administered. Staff confidence assessed by survey immediately before and after and three to four months after training. Increases in the total numbers of immunisations delivered by both groups (12.6% whole staff training, 15.2% train the trainer, no significance testing reported). Confidence survey response rates 95% and 92% pre and post training but 51% at 3 to 4 month follow up. Findings for both groups look similar on inspection, no significance testing reported. On the basis of these findings the project adopted the train the trainer approach for the remaining 22 pharmacies involved in the project	
13. Terriff, C.M. McKerinan K. Training student pharmacists to administer pediatric influenza vaccine: A comparison of traditional vs just in time training. Curr Pharm Teach Learn. 2017; 9(4): 560-567 Available here Randomised pilot study: Washington State University, USA	Compared pharmacy student's self-assessed interest, comfort and confidence level pre- and post-training and ability to competently administer a paediatric vaccination following traditional (TT) or just-in-time training (JIT). Used a simulation where third year pharmacy students were required to provide immunisation for a child under three years of age in a flu pandemic. Students already certified to deliver adult and adolescent vaccinations. 25 randomised to TT (1 subsequently dropped out) and 22 to JIT. TT received a one-hour training session including didactic lecture with a 40-min slide presentation covering paediatric immunisations with emphasis on emergency and mass vaccination clinics, a 10-min question and answer period, and a 10-min verbal assessment of learning objectives. In pairs practiced preparation, counselling and injection working with a simulated paediatric patient (doll or soft toy). Rotated roles of vaccinator and paediatric caregiver. Sterile saline used to simulate vaccination into pads moved to chosen site by the vaccinator. Allowed to practice injection technique	No vaccinations were given; they were simulated. The focus of the training was on competency to vaccinate children under three years; all students were already certified to vaccinate older groups. Pilot study with small number of participants. Study authors noted that selection bias probably occurred during enrolment as those who were more interested in learning about

Source	Summary of content	Limitations/considerations
	until they felt comfortable, most finishing within 15 to 20 minutes. Assessed two weeks after training. JITT group received condensed training of 10 min reviewing procedures for paediatric vaccination during an emergency with no time for technique practice. Vaccine competency assessment, undertaken by all students involved actors, performing as mother of infant being vaccinated. Actors given a script to standardize the experience and minimize bias. After training students performed a 'vaccination' and evaluated via a competency checklist of 20 steps covering vaccine preparation, administration, and documentation and counselling. Evaluated by a faculty member blinded to type of training. Both groups improved their self-report confidence scores pre to post training. Repeat measures analysis showed differences in change due to the type of training was not statistically significant (p=0.545). Training enhanced comfort scores in both groups, the change that occurred due to training was not different between groups (p=0.880). Competency scores ranged from 12 to 19 (a mode of 17) for TT group and 13–19 (mode of 16) for JITT group. No student received a score of 20. TT group yielded a mean score of 16.26±1.69 versus 16.14±1.83 for JITT. Differences in the means of the competency scores between the two groups were not statistically significantly different (p=0.813).TT students more commonly missed proper injection site selection and care; while JITT missed distracting the infant and administration documentation. Investigators concluded that outcomes were similar for both types of training.	paediatric immunisation were more likely to take part.