

Obtaining consensus on core clinical skills for training in family medicine

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Abstract

Background: Specialist registrar training in family medicine became a requirement in South Africa in August 2007. As part of the process of developing consensus on the content of training, heads of departments of family medicine agreed to a process for seeking national consensus on the skills required of a graduating family physician. A previously reported research project produced a set of skills lists that were used as the basis for this process.

Methods: The skills lists derived from the previous research were sent to all eight departments of family medicine in South Africa. The lists detailed (1) skills that should be performed independently at the end of training, (2) elective skills, (3) skills on which no consensus could be reached and (4) skills that should be performed under supervision during training. The departments were asked to discuss these skills and give consensus feedback on them, with the aim of narrowing down the lists to either (1) core or (2) elective skills.

Results: Seven of the eight departments participated. Good consensus (greater than 70%) was obtained on most skills, with confirmation of the lists of skills to be performed independently (core skills) and those that should be elective skills. Because consensus could not be obtained on reallocating many of the skills to be performed under supervision during training to either core or elective lists, it was decided to retain these as a third list of skills. The skills on which no consensus could be obtained in the prior research study were all allocated to the elective list as a result of this process.

Conclusions: The final skills lists represent the consensus of family medicine educators in South Africa and provide a basis for family medicine registrar training. They form one component of the outcomes required of graduating family physicians. A review of the lists will be required in time, as training programmes develop.

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Introduction

The formal training of family medicine registrars in South Africa was launched in 2008 following the promulgation of the new speciality in the Government Gazette of August 2007.¹ Departments of family medicine had been anticipating this decision for some time. In 2001, a consensus document on the outcomes of family medicine training was developed by the Family Medicine Education Consortium. This document was accepted as the standard for Family Medicine MMed programmes in 2004, as required by the South African Qualifications Authority (see Table I).

One of the agreed-upon outcomes was that a family physician should be able to "Evaluate and manage patients with both undifferentiated and more specific problems cost-effectively according to the bio-psycho-social approach". Clinical competency and, more specifically, competency in procedural and diagnostic skills, is now seen as a critical component of this outcome.

In order to reach consensus on the clinical skills required of family physicians in South Africa, a research project was undertaken.² A

Table I: The Family Physician Unit Standards – Learning Outcomes August 2004 (developed by the Family Medicine Education Consortium)

The candidate will be able to:
1. Manage himself/herself and his/her practice (in public or private sector) effectively with visionary leadership.
2. Evaluate and manage patients with both undifferentiated and more specific problems cost-effectively according to the bio-psycho-social approach.
3. Facilitate the health and quality of life of the community.
4. Recognise, evaluate and reflect on personal and professional strengths and weaknesses to appropriately change professional practice and behaviour.
5. Educate, consult and advise healthcare professionals, healthcare workers and institutions on the discipline of family medicine and on health related issues.
6. Conduct all aspects of health care in an ethical, compassionate and responsible manner.

Delphi process was used to develop a consensus list, with input from academic family physicians, family physicians in practice in a number

of settings (rural and urban, private and public), and managers who might employ family physicians. This produced a list of skills divided into the following five categories:

- Skills that can be taught by a family physician
- Skills that should be performed independently at the end of training
- Skills that should be performed under supervision during training
- Elective skills
- Skills on which no consensus could be reached

Following the publication of the research results, the heads of academic departments of family medicine felt that there should be a further process to agree formally on the skills required for academic training and to transform the five categories used in the research project into two categories of core and elective skills. The list of core skills would then guide the development of training programmes throughout the country.

We report on the conclusion of this process.

Methods

The skill lists derived from the original project were drawn up into tables in four groups (described below). These were circulated to the eight departments of family medicine in South Africa, with an indication of the level of agreement obtained previously. Each department was requested to discuss the lists and to respond with a consensus view regarding each of the skills. The four groups were as follows:

1. *Skills that should be performed independently at the end of training.* This group combined the first two groups of skills from the initial research. The departments were asked to indicate whether or not they agreed that these were core skills. If there was disagreement, they were asked to motivate this, as these were skills on which consensus had previously been achieved.
2. *Elective skills.* There was previously agreement that this group of skills should be elective and therefore not a standard part of the curriculum. The departments were asked to indicate whether or not they were in agreement, and to motivate any disagreement.
3. *Skills on which no consensus could be reached.* During the research, there was no consensus on how to categorise the skills in this group. The departments therefore were asked to indicate if they believed these should be core or elective skills, with motivation for any that were seen to be core.
4. *Skills that should be performed under supervision during training.* From the research, there was agreement that these skills were ones that should be performed under supervision. Again, the departments were asked to indicate if they believed these should be core or elective skills, with motivations.

Results

Responses were received from seven of the eight departments. The process that took place in each department varied, with different numbers of senior staff members reportedly having been involved (from one to 17). In one instance, specialists in other disciplines were also consulted. In all cases except one, the response received was assumed to be a consensus response of the department, regardless of the actual number of people involved. In the case of the one exception, scores out of 17 were presented, and a majority view (more than 12 = 70%) was used to reflect the consensus of that department. Consensus was defined as 70% (at least five departments in agreement).

Consensus was obtained on all the skills that should be performed independently by the end of training, and on all the elective skills

(groups 1 and 2 above). In all but two cases, at least six departments were in agreement, and in many all seven agreed.

There was again no agreement in relation to the skills on which no consensus could be reached in the research. None of the skills in this group achieved a 70% level of consensus, and it was thus proposed that all the skills in this group should be elective skills.

During the research there was agreement on a group of skills that should be performed under supervision during training. The aim of the current process was to divide this entire list into core and elective skills. There was sufficient consensus (more than 70% agreement) to do this for a number of skills, but for many others there was not and therefore it was proposed that these should remain a special group. Family physicians should see these procedures being performed during their training and should attempt them under supervision, but should not be required to become fully competent in them and to perform them independently for the purpose of assessment.

Based on these findings, the skills were aggregated into three tables (Tables II to IV). These tables were re-circulated to the eight departments with a proposal that they be adopted formally. There was subsequent agreement, via e-mail and at a meeting of representatives of departments of family medicine in August 2008, that these should be accepted.

Table II: Core skills – skills that should be performed independently at the end of training

Examination
1.
Perform common side-room tests
2. Glucometer
3. Haemoglobinometer
4. Pregnancy test
5. Urine dipstix
6. Venepuncture
Adult health – general
7. Femoral vein puncture
8. Lumbar puncture
9. Routine intravenous access in an adult
10. Arterial sampling radial artery
11. Blood culture technique
12. Lymph node excision biopsy
Adults – musculoskeletal
13. Measure shortening of the legs
14. Aspirate and inject the knee
15. Inject tennis elbow/golfer's elbow
16. Interpret radiographs of joints
Adults – abdomen
17. Stool for occult blood
18. Incision and drainage of perianal haematoma
19. Interpret the abdominal radiograph in an adult
20. Proctoscopy
Adults – chest
21. Electrocardiogram – set-up, record and interpret
22. Interpret chest radiograph
23. Measure peak expiratory flow
24. Nebulise a patient
25. Pleural tap
26. Use inhalers and spacers
Adults – urology
27. Penile block
28. Reduce a paraphimosis

29.	Circumcision
30.	Drain hydrocoele
31.	Insert a urinary catheter
32.	Insert a suprapubic catheter
Eyes	
33.	Funduscopy (diabetes, hypertension), visual fields, visual acuity
34.	Instil drops or apply ointment
35.	Remove a foreign body in the eye, eversion of eyelid
36.	Incise and drain a chalazion
37.	Suture an eyelid
38.	Test for squint
39.	Washout of eye (chemical burns)
ENT	
40.	Remove a foreign body from the ear
41.	Remove a foreign body from the nose
42.	Syringe, dry swab an ear
43.	Take a throat swab
44.	Manage epistaxis (cautery, packing)
45.	Rinne and Weber tests
46.	Suture a pinna, lobe
47.	Drain a peritonsillar abscess
Skin	
48.	Excise sebaceous cyst (other lumps, bumps)
49.	Apply a compression dressing to a venous leg ulcer
50.	Cryotherapy/cauterisation
51.	Skin biopsy (punch and fusiform), skin scrapes
52.	Wide needle aspiration biopsy lymph node
Consultation	
53.	Assess and consult couples, families
54.	Break bad news
55.	Counselling skills for HIV, termination of pregnancy, sexual assault
56.	Develop and use flowcharts for chronic care
57.	Mini mental examination
58.	Motivate behaviour change
59.	Patient-centred consultation (all ages)
60.	Shared consultation with Primary Health Care nurse
61.	Use genogram and ecomap
62.	Use problem-orientated medical record
63.	Conduct a family conference
64.	Cope with language barriers
65.	Holistic (biopsychosocial) assessment and management
66.	Sexual history and counselling
Newborn	
67.	Well newborn check
68.	Assess gestational age at birth
69.	Kangaroo mother care
70.	Resuscitate a newborn
71.	Umbilical vein catheterisation
Pregnancy	
72.	Antenatal growth chart
73.	Assess fetal wellbeing during labour
74.	Episiotomy and suturing
75.	Examine a pregnant woman
76.	Examine progress during labour and use partogram
77.	Normal vaginal delivery
78.	Speculum examination
79.	Apply and interpret cardiotocograph
80.	Assess fetal movement/wellbeing
81.	Assisted vaginal delivery/vacuum extraction/forceps
82.	Caesarean section
83.	Evacuation of uterus
84.	Manual removal of placenta

85.	Repair of third-degree tear
Women's health	
86.	Insertion of intrauterine contraceptive device
87.	Papanicolaou smears
88.	Dilatation and curettage
89.	Drainage of Bartholin's abscess/cyst
90.	Endometrial biopsy/sampling
91.	Fine needle aspiration biopsy of breast lump
92.	Tubal ligation
Emergency	
93.	Calculate % burn
94.	Choking
95.	Give oxygen
96.	Immobilise spine
97.	Intubate and manage airway
98.	Measure the Glasgow Coma Scale
99.	Administer rabies prophylaxis
100.	Advanced cardiopulmonary resuscitation – adult
101.	Advanced cardiopulmonary resuscitation – child
102.	Debride wounds or burns
103.	Gastric lavage
104.	Give a blood transfusion
105.	Incision and drainage of abscesses
106.	Insert chest drain
107.	Insert naso-gastric tube
108.	Interpret radiographs in trauma
109.	Intravenous cut down
110.	Manage snake bite
111.	Primary survey
112.	Relieve tension pneumothorax
113.	Remove a splinter, fish-hook
114.	Secondary survey
115.	Selecting emergency equipment for doctor's bag or emergency tray
116.	Suture lacerations
117.	Transport critically ill
118.	Cricothyroidotomy
119.	Insert central line
Orthopaedics	
120.	Apply finger and hand splints
121.	Apply cast (upper and lower limbs)
122.	Closed reductions (hand, forearm, tibular-fibular)
123.	Set up traction (skeletal and skin)
124.	Reduce elbow dislocation
125.	Reduce hip dislocation
126.	Reduce radial head dislocation
127.	Reduce shoulder dislocation
128.	Excise a ganglion
Anaesthetics	
129.	Injections – intra-dermal, subcutaneous, intramuscular, deep intramuscular, sub-conjunctival
130.	Ring block
131.	Administer oxygen
132.	Check Boyle's machine
133.	Control airways – mask
134.	General anaesthetic
135.	Inhalation induction
136.	Intravenous induction
137.	Intubate and ventilate patient
138.	Ketamine anaesthesia
139.	Monitor patient during anaesthetic
140.	Recover patient in recovery room

141. Reverse muscle relaxation (mix drugs)
142. Set airflows – Magill, Circle, T-piece
143. Spinal anaesthetic
144. Sterilise your equipment
145. Ventilate patient – mask and hand
Child health
146. Assess growth and classify malnutrition
147. Assess child abuse (sexual/nonsexual)
148. Capillary blood sampling – finger, heel
149. Chest radiograph in a child
150. Developmental assessment
151. How to do and interpret Tine test and Mantoux tests
152. Intra-osseous line
153. Intravenous access in a child
154. Lumbar puncture in a child
155. Manage problems using the integrated management of childhood illness approach
156. Suprapubic bladder puncture
157. Venepuncture – upper limb, extn jugular vein
Administration
158. Completing sick certificates
159. Completing death certificates
160. Certifying patient under Mental Health Care Act
161. Completing J88 form following assault
162. Making appropriate referrals and letters
163. Managing a clinic for chronic care (e.g. HIV and ARVs, diabetes)
164. Work assessment and Disability Grant forms
Forensic
165. Assess, manage and document drunken driving
166. Assess, manage and document interpersonal violence
167. Assess, manage and document sexual assault
Palliative care
168. Counselling of dying patient

Table III: Supervised skills – skills that should be performed under supervision during training

Perform common side-room tests
1. Microscopy of urine
2. Microscopy of vaginal discharge (wet mount, potassium hydroxide)
Adult health – general
3. Perform HIV ELISA test
Adults – musculoskeletal
4. Inject carpal tunnel syndrome
5. Inject de Quervains tenosynovitis
6. Inject the shoulder and sub-acromial bursa
7. Inject trochanteric bursitis
Adults – abdomen
8. Appendectomy
9. Interpret barium swallows
Adults – chest
10. Exercise stress test
11. Perform and interpret office spirometry
12. Pleural biopsy
Adults – urology
13. Hydrocoelectomy
14. Interpret intravenous pyelogram
15. Vasectomy
Eyes
16. Subconjunctival injections
17. Use a Schiotz tonometer
ENT
18. Assess hearing loss, interpret audiogram

19. Reduce a fractured nose
Skin
20. Inject keloids
21. Phenol ablation of ingrown toenail
22. Skin graft
Pregnancy
23. Clinical pelvimetry
24. External cephalic version
25. Obstetric ultrasound
26. Amniocentesis
Women's health
27. Culdocentesis
28. Hormone implants
29. Laparotomy for ectopic pregnancy
30. Termination of pregnancy (if no religious/ethical objections)
Emergency
31. Relieve cardiac tamponade
32. Peritoneal lavage
33. Suturing lip with tissue loss from human bite
34. Tracheostomy
Orthopaedics
35. Amputations – fingers
36. Apply club foot cast
37. Debridement of open fractures
38. Fasciotomy
Anaesthetics
39. Bier's block
40. Brachial block
41. Epidural
Palliative care
42. Hypodermoclysis (subcutaneous infusion)
43. Set up a syringe driver

Table IV: Elective skills – these can be taught in specific programmes but are not required as part of national training. Other elective skills not listed here may also be relevant to individual students/settings

Adult health – general
1. Doppler ultrasound (for peripheral vascular disease)
2. Bone marrow puncture technique and smear
3. Microscopy of cerebrospinal fluid
4. Thin and thick smears for malaria
Adults – abdomen
5. Abdominal ultrasound
6. Anal sphincterotomy
7. Gastroscopy
8. <i>H pylori</i> testing
9. Peritoneal dialysis
10. Repair a hernia
11. Injection of haemorrhoids
12. Rubber-banding of haemorrhoids
13. Anal dilatation
14. Sigmoidoscopy
15. Liver biopsy
Adults – chest
16. Echocardiogram
Adults – urology
17. Bilateral subcapsular orchidectomy
18. Cystoscopy
19. El Ghorap shunt for priapism
20. Prostate biopsy
21. Varicolectomy
22. Orchidectomy and anchoring of torted testis

Eyes
23. Cataract removal
24. Evisceration of eye
25. Slit-lamp examination
26. Subjective refraction and dispense 'stock' glasses
ENT
27. Tonsillectomy/adenoidectomy
28. Indirect laryngoscopy
Skin
29. Skin patch testing
The newborn
30. Exchange transfusion
The pregnant woman
31. Cervical cerclage for incompetence
32. Pelvic ultrasound
Women's health
33. Cone biopsy of cervix
34. Cervical polyp removal
35. Colposcopy
36. Hysterectomy
37. Loop electrosurgical excision procedure (LEEP) for cervix
Emergency
38. Laparotomy for stabbed abdomen
39. Laparotomy for bowel obstruction
40. Burr holes
Orthopaedics
41. Open reductions, pins and screws
42. Repair nerves and tendons
Child health
43. Extradural tap
Dental
44. Dental extraction
45. Wiring of teeth for mandibular fractures
Forensic
46. Medico-legal post-mortem
Radiology
47. Taking basic radiographs

Discussion

These lists represent the current academic consensus on the clinical skills that registrars in family medicine should acquire during training. Each academic department of family medicine can now plan how its registrars will receive training in these clinical skills in their specific context. This is particularly important for the core skills in order to ensure standardisation of training and assessment. Skills to be performed under supervision and elective skills may be treated differently in different settings.

It is important to note that, in agreeing, the departments of family medicine accepted that this is not a static document, but rather a living

one that may need to be changed and updated to reflect changing circumstances and lessons learnt as time passes. We propose that the content of the lists should be reviewed after three years, as should be the case for any guideline. There will also need to be ongoing monitoring in the light of reports from other programmes that residents are not being taught certain core procedures.³

Furthermore, it is important to note that clinical skills and procedures are not the entire curriculum. They represent one element of the curriculum, relating to the development of clinical competence. It is important for registrars also to integrate the key principles of family medicine into their practice, as well as skills related to teaching, administration and management. The ability to perform a particular clinical procedure or skill should not be divorced from the appropriate use of that skill and the decision-making process surrounding it. The focus on defining the clinical skills outcomes should not be seen as promoting a vision of the family physician as only being a technical or procedural expert at the district hospital.

At the same time, the list offers a useful benchmark for district health services, as they help define the norms and standards for services at district hospitals and primary care clinics.

The process for developing competence in these skills may differ at different universities and training complexes. There should be flexibility in this. Many family physicians will not feel comfortable with teaching all the skills and special arrangements may need to be made for the registrars to acquire them.⁴ The common standard is the outcome, rather than the process for achieving it.

We believe important consensus has been reached that can serve as an example to other professions and other countries. The process towards achieving such consensus is still under way in the USA,⁵ despite decade-old calls for this to happen.⁶ Using these outcomes, South African family medicine can hopefully avoid some of the variation and controversy that characterise training in other countries.⁷

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