Example of a long-hand calculation of PHC nurse staffing requirements to deliver a mental health intervention for depression in PHC

**The standards applied in this example are for illustration purposes only, and should not be applied to specific country circumstances.**

1. Determine the target number of interventions, based on assessment of need and decision on planned coverage

If a PHC facility serves an adult population of 10 000 people with an estimated annual prevalence of depression of 5%, then there will be about 500 people who suffer from depression each year. Existing surveys and/or expert informants suggest that 10% of these cases are currently being treated. It may not be feasible or reasonable to attempt to assess and treat all 500 cases, and so, depending on local circumstances, the planners may decide to initially aim to treat 50% or 250 cases each year.

1. Identify the staff required at each service level

The first step is to systematically identify the activities required to deliver the packages and the required competencies, matched to the PHC workers who will perform the various activities and the training requirements.

Table 1 shows the evidence-based interventions (from Part 1, Table 2) that can be delivered at the PHC level of the service organization pyramid, along with their component activities and possible PHC personnel who could deliver the activities: e.g. PHC nurse (PHCN), community health worker (CHW), midwife or general practitioner (GP). These are suggested activities and personnel to illustrate the process, and different countries may decide to utilize different cadres of staff to deliver interventions, depending on their available resources and population needs. *The pre-requisites to any member of staff delivering any one of these interventions is that local regulations and licensing permit it, and they are appropriately trained and have the competencies required to deliver the intervention to a professional standard.*

**Table 1.** **Evidence-based interventions that can be delivered at the PHC level of the service organization pyramid, along with their component activities and possible PHC personnel to deliver the activities**

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|  | * PHC services for mental health: case finding, assessment and evidence-based interventions
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|  | **Component activities** | **Possible PHC personnel** |
| ***Adult mental disorders*** |
| Screening and proactive case finding of psychosis, depression and anxiety disorders | Screening | PHCN or CHW |
| Communication | PHCN or CHW |
| Diagnosis and management of depression (including maternal) and anxiety disorders | Assessment | PHCN |
| Psycho-education | PHCN |
| Basic psychosocial treatment | PHCN or CHW |
| Support | PHCN or CHW |
| Simple cognitive behavioural therapy | PHCN |
| Prescribing | GP or PHCN |
| Follow-up and review | GP & PHCN |
| Continuing care of schizophrenia and bipolar disorder | Psycho-education | PHCN |
| Prescribing | GP or PHCN |
| Knowledge of medication | GP & PHCN |
| Counselling | PHCN or CHW |
| Support | PHCN or CHW |
| Advocacy | PHCN or CHW |
| Recording | CHW, GP & PHCN |
| Management of depression and anxiety disorders in people with HIV, with other NCDs | Assessment | GP |
| Diagnosis | GP |
| Psycho-education | PHCN |
| Reduce stress and strengthen socialSupports | PHCN or CHW |
| Promote functioning in daily activities | PHCN or CHW |
| Behavioural activation  | PHCN or CHW |
| Relaxation training  | PHCN or CHW |
| Problem solving treatment  | PHCN or CHW |
| Cognitive behavioural therapy  | PHCN |
| Interpersonal therapy (IPT) | PHCN or referral |
| Prescribing | GP |
| Knowledge of medication | GP & PHCN |
| Follow-up and review | GP & PHCN |
| ***Child mental and developmental disorders*** |
| Screening for developmental disorders in children | Screening | Midwife or CHW |
| Maternal mental health interventions | Psycho-social interventions | Midwife, PHCN or CHW |
| Problem management | Midwife, PHCN or CHW |
| Parent skills training for developmental disorders | Parent skills training | PHCN or CHW |
| Psychological treatment for mood, anxiety, ADHD and disruptive behaviour disorders | Assessment | GP or PHCN |
| Provide guidance on child/adolescent well-being | PHCN or CHW |
| Psycho-education | GGP, PHCN or CHW |
| Provide guidance on improving behaviour. | PHCN or CHW |
| Reduce stress and strengthen socialSupports | PHCN or CHW |
| Carer support | PHCN or CHW |
| Liaise with teachers and other school staff | PHCN or CHW |
| Link with available resources inthe community | PHCN or CHW |
| Follow-up and review | PHCN |
| Referral | GP or PHCN |
| Cognitive behavioural therapy | PHCN orReferral to specialist |
| Knowledge of medication | GP & PHCN |
| Improve the quality of antenatal and perinatal care to reduce risk factors associated with intellectual disability |  | Midwife, PHCN or GP |
| ***Neurological disorders*** |
| Diagnosis and management of epilepsy and headaches | Assessment | GP or PHCN |
| Diagnosis | GP |
| Psycho-education | PHCN |
| Psycho-social interventions | PHCN or CHW |
| Promote functioning in daily activities | PHCN or CHW |
| Prescribing | GP or PHCN |
| Knowledge of medication | GP & PHCN |
| Management of prolonged seizures or status epilepticus | Assessment of emergency | CHW, GP and PHCN |
| General management of emergency | CHW, GP and PHCN |
| Medical management of emergency | GP or PHCN |
| Screening for detection of dementia | Screening | GP, PCHN or CHW |
| Interventions to support caregivers of patients with dementia | Support | PHCN or CHW |
| Access community resources | PHCN or CHW |
| Advocacy | PHCN or CHW |
| ***Alcohol and illicit drug use*** |
| Screening and brief interventions for alcohol use disorders | Screening | CHW, GP or PHCN |
| Brief intervention | PHCN |
| Opioid substitution therapy (e.g. methadone and buprenorphine) for opioid dependence | Assessment | GP & PHCN |
| Psycho-education | GP & PHCN |
| Brief Intervention (motivational interviewing) | GP & PHCN |
| Strategies to reduce/stop use | GP & PHCN |
| Liaise with mutual help groups | GP & PHCN |
| Strategies for preventing harm from drug use and treating related conditions | GP & PHCN |
| Carer support | PHCN && CHW |
| Prescribing | GP or PHCN |
| Knowledge of medication | GP & PHCN |
| Follow-up and review | GP & PHCN |
| Referral for admission to a residential rehabilitation or other psychosocial support programme | GP or PHCN |
| ***Suicide and self-harm*** |
| Primary health-care packages for underlying MNS disorders | Assessment of suicide attempt and self-harm | GP & PHCN |
| As above | As above |
| Follow-up and review | GP & PHCN |
| Planned follow-up and monitoring of suicide attempters | Psycho-education | GP & PHCN |
| Psychosocial support | PHCN & CHW |
| Carer support | PHCN & CHW |
| Consultation-liaison | GP & PHCN |
| Referral | GP & PHCN |
| Emergency management of poisoning | Assessment | GP && PHCN |
| Prescribing | GP or PHCN |
| Administration of IM and IV drugs | GP or PHCN |
| Resuscitation | CHW, GP & PHCN |
| Management of airway | CHW, GP & PHCN |
| Referral | CHW, GP & PHCN |
| ***Promotion and prevention*** |
| Mental health promotion and prevention of disorders |  | CHW, GP & PHCN |
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1. Establish activity standards

An activity standard is the amount of time required for a trained worker to perform an activity to professional standards in the local circumstances. The activity standards for each type of activity can be established by observation of how long it takes to complete the activity. This can be measured either as the time taken to complete the activity (e.g. average number of minutes to complete an assessment – for instance, measured as the time taken from starting the activity until the activity has been fully completed and the staff member moves on to start their next activity), or the number of activities completed in one day (e.g. average number of assessments completed in one session). The activity standard must include the time to complete all the work involved in the activity – for example, if records need to be made, the time taken to complete the records should be included.

It is important to be aware that activity standards, such as for the assessment of a case of depression, will not be the same in all circumstances. They will differ by who is carrying out the activity (nurse, GP, psychiatrist), and the type/level of facility (PHC, community mental health facility, outpatient clinic, hospital). They pertain to the work performed by a well-trained, skilled and motivated staff member, but they are not the “ideal” or fastest possible standards – they must be realistic and appropriate for the circumstances in each local setting.

1. Calculate standard annual activity workloads

The activity standards can be converted to the equivalent standard annual activity workloads – by calculating how much of this activity can be done by one person in one year. (This is a calculation done purely as part of the estimation of staffing needs, and not to suggest that any member of staff should be required to carry out a single type of activity repeatedly throughout the year!). The calculation should be adjusted to take account of absence due to leave, public holidays, illness, training, supervision, administrative tasks and travel.

If PHC nurses work 8-hour days and 5 days per week, then they work a total of 5 x 52 = 260 possible working days each year.

However if there are 10 public holidays, an allowance of 20 days annual leave, an allocation of 10 days training per year, and an average sick leave of 15 days per year, then the number of available working days drops to 260 – 55 = 205 days.

If travel takes one hour each day, and general administrative tasks take one hour each day, then the time available for the activity is 6 hours each day. The available number of hours available each year, taking account of these, is 205 x 6 = 1230 hours.

If supervision is scheduled for one hour each fortnight, and occurs regularly except during annual and sick leave, then there will be about 22 supervision sessions each, leaving 1230 - 22 = 1208 hours for the activity.

The standard annual activity workload for one PHC nurse for the specified activity is 1208 hours divided by 15 minutes = 4832.

1. Estimate the number of staff required at each service level

The numbers of each type of staff required for each activity can be calculated based on the expected annual workload in the facility based on the needs assessment and the annual standard workload for that activity.

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| --- | --- |
| Expected activity workload in the facility (derived from service need) | = Staffing need for  the activity |
| Standard activity workload (for one staff member) |

For example, if a PHC facility serves an adult population of 10 000 people with an estimated annual prevalence of depression of 5%, then there will be about 500 people who suffer from depression each year. Existing surveys and/or expert informants suggest that 10% of these cases are currently being treated. It may not be feasible or reasonable to attempt to assess and treat all 500 cases, and so depending on local circumstances the planners may decide to initially aim to treat 50% or 250 cases each year.

The intervention for depression selected by the planners includes a number of activities, several of which are carried out over a number of visits. The target number of treated cases per year is multiplied by the activity standard and the number of occasions (or visits) that the activity is expected, on average to be delivered to give the expected annual activity workload (see Table 2).

**Table 2.** **Example calculation of expected annual activity workload (hours) for PHC nurse delivering interventions for depression, with a target of 250 treated cases per year.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function** | **Number of cases per year** | **Activity standard****(hours)** | **Number of occasions/visits** | **Expected annual activity workload (hours)** |
| Assessment | 100% = 250 | 0.5 | 1 | 125 |
| Psycho-education | 100% = 250 | 0.25 | 1 | 63 |
| Basic psychosocial treatment | 100% = 250 | 0.333 | 4 | 333 |
| Support | 100% = 250 | 0.125 | 4 | 125 |
| Simple cognitive behavioural therapy | 20% = 50 | 0.667 | 8 | 267 |
| Follow-up | 100% = 250 | 0.125 | 4 | 125 |
| Total | 1038 |

The Whole Time Equivalent (WTE) PHCN required to deliver these interventions can be calculated by dividing the expected activity workload by the standard annual activity workload of one staff member:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Expected annual activity workload (derived from service need) | = | 1038 | = | 0.22 WTE  |
| Standard annual activity workload (for one staff member) | 4832 |

For each staff cadre, the WTE staffing need for each of the planned priority interventions can be summed to give the total WTE requirements. This will provide an estimate of the total number of WTEs for each professional group.

However, current staff are already devoting some of their time to the assessment and treatment of people with depression. The existing workloads can be estimated in a similar manner for current activities in the assessment and treatment of depression. The difference between the number of WTEs needed to deliver the planned interventions and the existing WTEs devoted to interventions for depression will provide an estimate of the additional WTEs required to provide the planned interventions for depression to achieve the target of 50% of cases.