Models of vocational rehabilitation after brain injury

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Early specialist ABI vocational provision

• Sheltered workshop, Birmingham Accident Hospital, UK
  – 30 people, 5 days / week – making cardboard boxes, filing cabinets, sorting tasks / light assembly work
  – 45% of 101 attendees return to work (London, 1973)

• Therapeutic workshop environment - Loewenstein Rehabilitation Hospital, Israel
  – 30 hrs. / week - psychotherapy, cognitive retraining, voc. assessment / voc. training (in-house/outside) & family work
  – therapeutic gains but less success in generalising gains (Rosenbaum et al.1978)
New York University Head Trauma Program (NYU Medical Center)

- **Intensive holistic remedial interventions** (5 hrs. per day, 4 days per week for 20 wks.).
  - cognitive remediation, self-awareness & social skills
- **Guided occupational trials** (usually on-site (3-9 mons))
  - treatment plan, objectives & monitoring
    - competence, productivity & interpersonal appropriateness
- **Vocational placement**
  - assisted job search, familiarisation &
  - early adjustment monitoring

(Ben-Yishay et al. 1987)
New York University Head Trauma Program

Vocational outcomes (excl. people with previous ABI, significant psychiatric history or drug/alcohol abuse):

- 94 persons with brain injury - mean coma 34 days (range 1-120 days)

- At 6 mons  56 % competitive, 22% sheltered
- At 3 years  50 % competitive, 22% sheltered

(Ben-Yishay et al. 1987)
Supported Work Model
(Virginia Medical College)

Programme Components:
• Job Matching & Job Placement (incl. travel)
• Job Site Training, Communication & Advocacy
• Ongoing Assessment (client & supervisor)
• Job Retention & Follow Along

Support provided a job coach

(Wehman et al. 1988)
Supported Work Model

1. Job Placement:
   - matching job needs to client abilities / potential
   - encouraging employer communications with client
   - encouraging parent or caretaker communications
   - establishing travel arrangements / training
   - analysing environment (verify potential obstacles)

(Wehman et al. 1988)
Supported Work Model

2. Job Site Training & Advocacy:

- Behavioural training of skills
  - skills acquisition
  - time-keeping
  - reducing inappropriate behaviour
  - communication training

- Advocacy on behalf of the client
  - orientation to workplace
  - communication co-workers, parents/care-workers
  - counselling client about work behaviours

(Wehman et al. 1988)
Supported Work Model

3. Ongoing Assessment:
   • supervisor & client evaluation

4. Job Retention & Follow-Along:
   • regular on-site visits / phone calls
   • reviews of supervisor evaluations
   • client progress reports
   • parent/caretaker evaluations

(Wehman et al. 1988)
Roles of 'Job Coach'

- Vocational counselling
- Job search
- Job applications
- Advocacy & communication
- Job interviews
- Travel & time keeping
- Induction
- Job analysis
- Skills training
- Co-working
Supported Work Model

Outcomes:

• Of 43 'placed' TBI clients (GCS<13): 70% were competitively employed at 6 mons. after average of 290 hrs. intervention (Wehman et al. 1990)

• Average intervention for 'most difficult' clients (425 hrs. - cost $ 12,000) twice that for 'least difficult' (211 hrs. - cost $ 6,000). (Wehman et a. 1993).
Sharp Memorial Rehabilitation Centre, San Diego

Work Re-entry Program (Abrams et al 1993)

- Vocational rehabilitation
  - simulated work samples
  - work hardening
  - work placements (+ job coach)
  - vocational counselling
  - job seeking/keeping skills
- Supported placement
  - Job analysis / placement
  - On-site support
  - Off-site adjustment/support group
Sharp Memorial Rehabilitation Centre, San Diego

- Outcome / Cost Benefit Analysis

• Of 142 participants (mean coma 12 days)
  – 65% in employment within one year
  – 75% in employment within 3-5 years
  – 55% in employment at last follow-up

  – Average cost $ 4,377 per person
  – Average pay-back period 20 mons.

(Abrams et al 1993)
Brain Injury Vocational Case Co-ordination
(Mayo Medical Center, Rochester, Minnesota)

• Brain Injury Nurse Case Co-ordinator refers asap to ...
• Vocational Case Co-ordinator:
  – works closely with rehabilitation staff
  – integrates vocational goals onto rehabilitation
  – assesses vocational readiness
  – develops comprehensive return to work plans
  – provides vocational counselling & evaluation
  – links with local work rehabilitation center
  – provides adjustment to disability counselling

(Buffington & Malec 1997)
Brain Injury Vocational Case Co-ordination

80 participants - 52 TBI (mild, moderate or severe)

- Inclusion - diagnosis of brain injury aged 18-65
- Exclusion - primary psychiatric or substance abuse diagnosis and those with no indication of BI on NPA.

- 70 % placed by one year - of those placed:
  - 74 % in community based employment
  - 41 % in independent work without support
- Working on average 28.4 hours per week
- 37% of those placed - with same employer

(Buffington & Malec 1997)
Survey of 16 TBI Model Systems in USA

Three clusters of vocational intervention identified

• Medical rehabilitation model - 5 programmes
  – Staffed by medical rehabilitation personnel
  – Focus on community re-entry – work one facet only
  – Emphasise pre-placement intervention (e.g. voc. skills training) & counselling (vocational/adjustment issues), 3 use work trials to evaluate/strengthen work readiness.
  – Two programmes assist with return to previous jobs but none with finding new jobs.

(Hart et al. 2006)
Clusters of vocational intervention cont.

- **Vocational rehabilitation model – 6 programmes**
  - All bar one staffed by voc. rehab. counsellors
  - Four centres operate as stand alone programmes, independent of medical rehabilitation departments
  - Two centres link with Federal State Vocational Rehabilitation System for job placement etc.
  - Emphasise job development & placement, on-the-job training & follow along, as opposed to pre-placement.

(Hart et al. 2006)
Clusters of vocational intervention cont.

- **Combined model (case management) – 6 progs.**
  - Staffed by vocational & medical rehabilitation staff
  - Case management a core part of the programme
  - All closely associated with medical rehabilitation
  - All provide vocational & adjustment counselling
  - Emphasise job development, placement & work trials that could lead to a work placement
  - All provide follow along & all bar one job coaching

(Hart et al. 2006)
TBI: Co-worker as trainer project
(Seattle, Washington & Minot, North Dakota)

Key components:

• Assessment & short-term work trials / job ‘tryouts’
• Psycho-educational group (15 X 2 hrs)
• Individualised job matching
• Co-workers trained in specified teaching sequence (i.e. verbal instruction, model, observe, coach)
• Employment specialists monitor & provide suggestions
• Follow-up: monitoring/guiding co-workers/participants

Co-worker model 9 cases – 7 employed  (Curl et al.1996)
The Clubhouse model after ABI

• A consumer-directed, community-based, day programme operated by and for its members – staff facilitative role
• Centre tasks within work units selected by participants
• Staff review progress, establish goals & identify resources
• Members focus on practical skills – those with requisite skills supported in seeking paid positions in community
• 17-35% in compensated work experience, some with job coaching input and follow up support in the workplace - most members previously not viewed as capable of work

(Jacobs, 1997)
Programme Without Walls, New York

- VR counsellor explores goals & selects PWW member
- Meeting set up to review neuropsychological results
- Evaluation of voc. interests, achievement & aptitude
- Functional community assessment of capabilities/skills.
- Mock job interviews set up, observed & discussed
- Identification of appropriate job
- Job reviewed – requirements / structure / supervision
- In post - help in learning, integration & maintaining work performance with ongoing support

(O’Neill et al. 2004)
Programme Without Walls (PWW)

21 people with TBI compared with 21 matched controls (age, sex, education but not severity TBI)

(Controls receive traditional state VR: i.e. counsellor - individual plan; services from outside agencies; progress monitoring):

- 57% of consumers choosing PWW successfully placed compared with 24% receiving traditional state VR
- PWW consumers worked average 32 hrs per week (cf 17.8 hrs)
- PWW consumers higher average weekly earnings ($329 vs $124)
- PWW additional costs just $260 greater ($3586 vs. $3326).

(O’Neill et al. 2004).
Holistic VR interventions (over two years):

1. Assessment (static & dynamic) & feedback
2. Social & cognitive skills training (ind. & group)
3. Individual counselling & instruction (incl. family)
4. Work experience placement & employment
   - Job creation matching and skill development
   - Social and vocational networking in workplace
   - Negotiation and advocacy in transition to employment

(Rees & Storry, 1997)
ABI Transition to employment project
29 people with ABI (mostly very severe injuries)

Work placements observations / outcomes:

- Appropriate work site located for all participants
- Participating employers & supervisors – keen to learn
- Vocational support networks generated at worksite
- Key worker responsible for learning / skill development
- Robust family/social support networks vital to progress
- 7 / 23 achieved paid employment > improved QoL

(Rees & Storry, 1997)
ABI Vocational rehabilitation in Europe e.g.

- Torneo Project for Prof. Reintegration of People with ABI, Univ.Hosp. Gent, Belgium (Lannoo & Brusselmans)
  - Evaluation / training through job trials in hospital departments – 20/36 positive result (work, school etc)

- INSURE Program (Kapyla Rehabilitation Centre, Helsinki, Finland) (Sarajuuri et al. 2005)
  - Neurorehabilitation / psychotherapy > individually tailored VR interventions (e.g. supported work trial).
  - 89% of intervention gp. productive vs 55% controls
Past Vocational Rehabilitation in the UK:

Government funded programmes (1960-80s)

- Disablement Resettlement Officers (DROs)
- Employment Rehabilitation Centres (ERCs)
- Sheltered Workshops
- **Quota system:** employers with at least 20 workers – expected to employ at least 3% of people with disability

+ Various Youth Training / Opportunity Schemes
Did Manpower Services Commission (MSC) Employment Rehabilitation Schemes (ERCs) help?

64 people with severe TBI (PTA > 1 wk) at 3 yr. f/u:

- 25 people regained employment
  but of these 21 (85%) did so without MSC help
- 16 people made use of MSC schemes
  but of these 12 (75%) were not employed at F/U
- In work: 18/47 success RTW – only one via ERC
- In educ.: 7/16 success into work – three via ERC

(Johnson, 1989)
Did Manpower Services Commission Schemes help?

Johnson (1989) concludes ……:

- Most likely reason for failure of MSC schemes is that they do not meet needs of people with TBI:
  - Attend ERC too late (mean >2 yrs post-injury) - 1/3 attended only after already failed RTW)
  - Too short to be effective (ERC mean 16.6 wks)
  - Lack of use of sheltered placement scheme
Managed return to previous work

Under 'special conditions' (Johnson, 1987)

- Part-time initially, then full-time
- Easier work (easier job or restricted duties)
- Work trial (same or different job)
- Informal return (unpaid, reduced/flexible hours)
- Liaison with rehabilitation unit (phone / visits)
- Training to address specific problems at work
- Workplace support (e.g. by a work colleague)
- 'Tolerance' (e.g. about unscheduled days off)
Vocational outcome after TBI

64 persons with very severe TBI (PTA > 7 dys.)

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>3 yrs. F/U</th>
<th>10 yrs F/U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed - full-time</td>
<td>37 %</td>
<td>34 %</td>
</tr>
<tr>
<td>Employed part-time</td>
<td>3 %</td>
<td>10 %</td>
</tr>
<tr>
<td>Student</td>
<td>3 %</td>
<td>0 %</td>
</tr>
<tr>
<td>Sheltered work</td>
<td>2 %</td>
<td>6 %</td>
</tr>
<tr>
<td>Unemployed</td>
<td>55 %</td>
<td>50 %</td>
</tr>
</tbody>
</table>

(Johnson, 1998)
Working Out: A Joint DoH / ES TBI Vocational Rehabilitation Project

Community Head Injury Service,
Aylesbury Vale Community Health NHS Trust,

Funded by:

• Department of Health as part of the Traumatic Brain Injury Rehabilitation Initiative (1992-97)
Working Out Programme - Aims

• To assess the vocational needs and potential of persons with brain injury.

• To provide specialist vocational rehabilitation to prepare for a return to work or alternative occupation.

• To find, set up and support voluntary work trials to evaluate alternative occupational options.

• To find, set up and support suitable long-term work placements for persons with brain injury.
WO: Severe TBI outcomes March 2000
(severe TBI - median PTA 42 days / median duration 41 mons.)

<table>
<thead>
<tr>
<th></th>
<th>Discharge (n=40)</th>
<th>1 yr. F/U (n=39)</th>
<th>2 yr. F/U (n=36)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment / Training</td>
<td>50 %</td>
<td>51 %</td>
<td>50 %</td>
</tr>
<tr>
<td>Therapeutic / voluntary work</td>
<td>35 %</td>
<td>28 %</td>
<td>25 %</td>
</tr>
<tr>
<td>Adult education / rehabilitation</td>
<td>12.5 %</td>
<td>15 %</td>
<td>14 %</td>
</tr>
<tr>
<td>Unoccupied</td>
<td>2.5 %</td>
<td>5 %</td>
<td>11 %</td>
</tr>
</tbody>
</table>
WO Vocational Outcomes (Dec.07)
(People with ABI unable to return to previous occupation)

<table>
<thead>
<tr>
<th>Voc. Rehab. Outcomes</th>
<th>(n=113)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time employment</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Part-time employment</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Supported employment</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Vocational training</td>
<td>8</td>
<td>64%</td>
</tr>
<tr>
<td>Permitted work</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Voluntary work</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Adult education</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Further rehabilitation</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td>Disengaged</td>
<td>10</td>
<td>9%</td>
</tr>
<tr>
<td>No occupation</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>
The NHS and vocational rehabilitation

British Society of Rehabilitation Medicine note:

- ‘The NHS has largely lost the culture and skills of facilitating employment as a key element of effective health care.’
- Rehabilitation services ‘are predominantly focussed on promoting independence in personal daily life and enabling people to leave hospital rather than a return to productive work’.

BSRM (2000): Vocational rehabilitation: the way forward
Survey of ABI Vocational Rehabilitation in UK

- 62% of rehabilitation services reported that they address vocational issues as part of programme;
  - only 8 % provide specialist vocational rehabilitation
  - but 80 % refer clients on to vocational services.

- 36 such services for people with ABI identified:
  - ABI services which include a vocational element (7)
  - specialist ABI vocational rehabilitation services (14)
  - pan-disability voc. / FE programmes open to ABI (15)

(from Deshpande & Turner-Stokes, 2004)
Vocational rehabilitation services in the UK which are available for people with acquired brain injury

*Places asterisked (blue flashes) are known to have VR services catering specifically or people with ABI*
Department for Work and Pensions: Jobcentre Plus – current services

- Disability Employment Advisors (DEAs)
- Work Psychologists (WPs)
- Key Government funded programmes e.g.:
  - Access to Work provision
  - Work Preparation (incl. specialist ABI programmes)
  - Job Introduction Scheme
  - WORKSTEP (supported employment programme)
  - Permitted work

- Job Brokers + Incapacity Benefit Personal Advisors
Jobcentre Plus contracted: Specialist brain injury work preparation

Individual programmes designed to meet vocational needs after ABI - two major elements:

• **Element A** - job finding behaviour development needs & some occupational decision making needs.

• **Element B** - job keeping behaviour development needs incl. both pre- & post-employment support.

(Jobcentre Plus, 2003)
Jobcentre Plus ABI Work Preparation

Additional / key ABI components:

• interpersonal/communication skills related to work
• anger management
• cognitive techniques for work / specific job
• vocational adjustment and/or psychological therapy (primarily work-focused)
• work simulation/experience to assess cognitive strategies, planning, organisational skills & instruction
• appropriate ad hoc on-site support (incl. job coaching)

(Adapted from Jobcentre Plus, 2004)
Rehab. UK - BI Vocational Centres:
(Birmingham, London & Newcastle)

A. Pre vocational rehab. phase:
- compensatory cognitive remediation techniques
- improve work-related social skills
- numeracy, literacy & IT
- self-awareness & knowledge of brain injury
- start to identify realistic vocational goals

B. In-situ vocational trial phase:
- placements in real work settings - sourced, overseen and monitored by job coaches
Rehab. UK - BI Vocational Centres:
(Birmingham, London & Newcastle)

Final placement stage
- Supported job search
- Support with job applications / interviews
- Job coaching to assist settling into new role
- ABI awareness training for supervisors/colleagues
- Follow-up support
Rehab UK Vocational centre outcomes:
232 people with ABI (Murphy et al 2006)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Paid competitive employment</td>
<td>41 %</td>
</tr>
<tr>
<td>Mainstream training / education</td>
<td>15 %</td>
</tr>
<tr>
<td>Voluntary work</td>
<td>16 %</td>
</tr>
<tr>
<td>Discharged to other treatment</td>
<td>15 %</td>
</tr>
<tr>
<td>Withdrew from programme</td>
<td>13 %</td>
</tr>
</tbody>
</table>
Inter-Agency Advisory Group on Vocational Rehabilitation after Brain Injury

Vocational Assessment & Rehabilitation after Acquired Brain Injury: Inter-Agency Guidelines

(British Society of Rehabilitation Medicine / Jobcentre Plus / Royal College of Physicians, 2004)
ABI: Vocational Service Guidelines

- **Guidance / support on return** to previous employment, education or training.
- **Vocational / employment assessment** to determine alternative avenues of employment or training.
- **Vocational rehabilitation** to prepare for return to alternative employment, education or training.
- **Supported employment** for those requiring ongoing support and/or additional training.
- **Alternative occupation** - permitted work, voluntary work or other occupational / educational provision.
Brain injury vocational rehabilitation provision

ABI Team: NP/OT

DEA

Work Prep.

Occup. Health

Work Psychol.

Access To Work

Day Activity

Shelt. w/shop

Vol. Work

 Permit. Work

WORK STEP

Voc. Train.

New Job

Old Job
UK National Service Framework for Long-term (Neurological) Conditions

Quality Requirement 6. Vocational rehabilitation

People with long-term neurological conditions are to have access to appropriate vocational assessment, rehabilitation and ongoing support to enable them to find, regain or remain in work and access other occupational and educational opportunities.

(Department of Health, 2005; www.dh.gov.uk/longtermnsf)
QR6 Markers of good practice:

1. co-ordinated multi-agency vocational rehabilitation that takes account of national guidance/best practice

2. local rehabilitation services:
   - address vocational needs during review of integrated care plan and as part of any rehabilitation programme;
   - work with other agencies to provide:
     • basic vocational assessment
     • support & guidance on return to work
     • support & advice on withdrawing from work
   - refer complex needs to specialist vocational services…..
QR6 Markers of good practice:

3. specialist vocational services address complex needs
   - specialist vocational assessment & counselling
   - interventions for job retention (incl. workplace support)
   - vocational rehabilitation or work preparation programmes
   - alternative occupation or educational opportunities
   - advice to other services.

4. routine monitoring vocational outcomes (including the reasons for incl. reasons - failure)
UK Department for Work and Pensions:
Proposed changes to statutory provision

• Incapacity Benefit > Employment Support Allowance
  – revisions to Personal Capabilities Assessment
  – work-focussed interviews

• Pathways to Work - Condition Management Programmes:
  – Pilots focused on mental health; cardiac; musculoskeletal

• Proposed changes to Disability Employment provision
  – Enhanced role for Disability Employment Advisor
  – Integrate Job Introduction, Work Preparation & WORKSTEP
  – Large generic providers – no specialist (e.g. TBI) provision

(IAAGVRBI, 2004)
UK vocational rehabilitation references:


14. Return to previous employment (Johnson & Stoten)
15. Vocational rehab. programmes (Tyerman, Tyerman & Viney)
16. Supported employment & job coaching (Carew & Collumb)