Outcomes in a Randomized Trial of a Mental Health Consumer-Managed Crisis Residential Alternative to a Psychiatric Health Facility

Beth C. Stoneking[1],

Tom K. Greenfield[2], Jason Bond[2]

[1]University of Arizona, Recovery thru Integration, Support & Empowerment (RISE) Tucson, Arizona

[2]Alcohol Research Group, Public Health Institute

Emeryville, California

Presented at SAMHSA, Services Administration, Center for Mental Health Services, *"CMHS Innovations in Recovery Seminar"* in Rockville, MD on April 30-May 1, 2009

ARG

Background

- The study was conducted in Sacramento, CA between 1993-1997 through funding from the Community Support Program of CMHS, SAMHSA (R18 MH51339;); a State subcontract to the WCPH (one of the precursors to Public Health Institute), whose Alcohol Research Group conducted the analyses, with Thomas K. Greenfield, Ph.D., P.I. and Beth C. Stoneking, Ph.D. as Research Coordinator; and Sacramento County Division of Mental Health funded the CRF program.
- Turning Point Community Programs was awarded the RFP from Sacramento County to implement and run the Crisis Residential Facility (CRF) alternative in 1992 and participation in the research/demonstration grant was a condition of award.
- Sacramento County Division of Mental Health ran the Psychiatric Locked Inpatient Facility (PLIF) and the Crisis Center where individuals came on their own or with a friend, or were brought for evaluation by police, mental health staff, or others for an evaluation of an acute crisis and were determined to be "danger to self" or "gravely disabled" being involuntarily detained for evaluation and inpatient admission.
- Risa Fox, M.S.W. was SAMHSA Project Officer and Steven Fields, Progress Foundation, San Francisco was a consultant to the research/demonstration project.

More Background

- Data from a **randomized trial** was analyzed **comparing** outcomes of a consumer managed Crisis Residential Program (**CRP**) for adults diagnosed with a psychiatric disorder who were experiencing an acute crisis and civil commitment vs. civil commitment in a Locked Psychiatric Inpatient Facility (**LPIF**) (Greenfield, Stoneking, Humphreys & Sundby. *American Journal of Community Psychology*, 2008).
- Of **393 participants** evaluated at admission, 109 carried dual diagnoses (Major Psychiatric and Substance Use Disorder/s), providing an opportunity to examine outcomes for those with dual diagnoses in two settings in 2006, this data is not reported here.
- **Consent to participate** forms were obtained after people were put on an involuntary hold by a psychiatrist and random assignment occurred simultaneously at the time consent was signed.
- The **involuntary hold was broken** for those individuals randomly assigned to the CRF, which was very controversial at the time (mid 1990's).

More Background

- I acknowledge **key collaborators** in the original study, especially **Thomas K. Greenfield, John Buck, James Barker, M.D., Sheila Boltz** and the **many consumers** who helped as providers in the CRF, researchers and participants. **Jason Bond** was instrumental in the final data analyses for publication of the research findings.
- **Consumer-managed programs have a long history** in both psychiatric and substance abuse services (e.g., Beard et al, 1982; Chamberlin, 1978; Humphreys, 1996; Lee, 1995);
- However there have been **few randomized trials** for people in psychiatric crisis in such programs in comparison to standard care
- In the US today and internationally, people diagnosed with a major psychiatric disorder operate and work in a wide range of programs and in a variety of positions in these programs including self-help groups, drop-in centers, clubhouses, independent living centers, advocacy organizations, residential treatment, supportive housing, crisis alternatives, referral lines, universities, outpatient clinics, etc.
- Peer Support has become a "best practice" and in many states is a Medicaid reimbursable service.

Further Background

- **Crisis Residential** Programs like the one studied are typically **small, unlocked home-like settings** in which consumer staff encourage an **ethic of peer mutual support and client-directed support** (Stroul, 1987; New Freedom Commission, 2003).
- Outcome measures, in addition to assessing psychiatric functioning variables, should include life enrichment and satisfaction with services (Davidson et al, 1999; Kyrouz & Humphreys, 1996)
- Dual Diagnosis is often not well addressed in psychiatric services; the CRP program studied was something of an exception by recognizing the need for specialized focus on co-occurring substance use disorders
- SUD (alcohol and drug) assessed at admission and having a consumer with a LISAC license doing assertive outreach after discharge from the CRF.

The Crisis Residential Program

- The Crisis Residential Program (CRP) was a **6-bed hostel** designed by consumers (with kitchen, bathroom, living room, laundry area, open staff area with locked records, accessible garden and gazebo) serving **adults 18-59** facing civil commitment due to being **gravely disabled** or a **danger to self.** It incorporated self-help principles emphasizing client-directed decision-making. Consumer staff including the CRP director had completed a junior college self-help skills course. CRP was embedded in an experienced, recovery-oriented contract agency offering oversight and support (Turning Point Community Programs in Sacramento, CA).
- Staff included 80% consumer staff, a contract psychiatrist, an R.N. for medications, with consumer staff on the hiring/selection committee, and a full-time CADAC-certified counselor who worked in the CRP and provided assertive after care in the community, dealing with substance abuse and other issues.
- Intended length of stay was 8 days with a 30-day maximum.

The Usual Care Condition

- A **locked inpatient psychiatric facility** (LIPF) licensed by the State as a Psychiatric Health Facility (PHF).
- The LIPF was **county operated and professionally staffed**, using **a medical model.**
- Facility had **80 beds** and did not provide assertive community outreach but did offer some on-site AA meetings.
- Located in a modern, newly built and designed one-story building with atrium spaces shaded by oaks, the LIPF was characterized as a new, attractive facility with high staff morale.
- The LIPF was less than 100 yards from the CRP and the research office. The CRP was newly constructed after the RFP for the Crisis Residential Program was awarded.
- A strong advocacy committee was instrumental in getting legislation passed to build a new PHF and the legislation included a Crisis Residential Program in the legislation.

Recruitment and Eligibility

Inclusion Adults presenting or brought to a county-operated crisis clinic, evaluated by a psychiatrist as having (a) major psychiatric disorder; (b) GAF score of 50 or lower; (c) meeting California's 5150 criteria (involuntary detainment for evaluation) as danger to self or gravely disabled; (d) willing and able to give informed consent.

Exclusion (e) aged under 18 or over 59 (per State licensure requirements); (f) had health insurance covering private psychiatric care; (g) had serious co-occurring medical problems; or (h) judged to meet the 5150 "danger to others" criteria (required exclusion by IRB).

Data Collection

- Trained research interviewers administered consent and a comprehensive assessment at **baseline (within 3 days of admission)**, with the exception of the Satisfaction Scale-Residential which was administered at **discharge from CRF or LIPF** and the **QOLI administered at baseline and 12 months.**
- **30-days**
- **Six months**, and
- **One year** after admission
- Interviewers were not blind to the condition as staff in both facilities assisted researchers in locating study participants for follow-up evaluations.

Summary Outcome Measures Used: Functioning

Global Assessment of Functioning (GAF) Scale – DSM-III R

- Interviewers trained in GAF rating. Rating considers "psychological, social, and occupational functioning" not due to physical (or environmental) limitations
- **81-90** Absent or minimal symptoms; **71-80** No more than slight impairment, transient reactions to stress; **61-70** Some mild symptoms like depressed mood and some difficulties but meaningful relationships; **51-60** Moderate symptoms (e.g., flat affect, circumstantial speech) or moderate role difficulties; **41-50** Serious symptoms (e.g., suicidal ideation, severe rituals) or serious impairment in functioning; **31-40** Some impairment in reality testing or communication (e.g., speech obscure) or major impairment in several areas; **21-30** Behavior considerably influenced by delusions or hallucinations; **11-20** some danger of hurting self or others OR fails to maintain hygiene; **1-10** Persistent danger of hurting self or others; OR serious suicidal act

Summary Outcome Measures Used: Functioning

- **Ohio version of the Uniform Client Data Inventory (UCDI) for client functioning** on three dimensions:
- **Basic Living Skills** (12 items: low score=higher functioning);
- **Social Activity** (4 items: high score = more activity)
- **Behaviors** (4 items identifying problematic behaviors: low score = less problems)
- This measure was to supplement the GAF, as Moos, et. al. (2002) found clinical diagnosis and symptoms are more associated with the GAF than social or occupational functioning.

Summary Outcome Measures Used: Psychiatric Symptoms and Strengths

- **Brief Psychiatric Rating Scale (BPRS): Interviewer rating** the presence and severity of common **psychiatric symptoms** (e.g. anxiety, emotional withdrawal, conceptual disorganization, guilt feelings, hostility, hallucinatory behavior, blunted affect) using 18 items; low scores = better functioning
- **Hopkins Symptom Checklist-40 (HSCL-40) Self-report rating** using 3 scales: **Depression** (8 items, 3 point rating; **Anxiety** (5 items, 3 point rating); and **Psychoticism** (7 items, 3 point rating).

Summary Outcome Measures Used: Other

- **Rosenberg Self-Esteem Scale:** 10 items, higher scores = positive self-esteem;
- **Quality of Life Inventory (QLIF) at baseline and 12 months:** family relations, social relations, finances and living situation: both objective and subjective measures in each domain (responses from "Delighted" to "Terrible"): higher score = greater life satisfaction.
- **Service Satisfaction Scale-Residential:** 33 items asking person's "overall feeling" or satisfaction with different aspects of services received using a 5 point "delighted" to "terrible" scale: higher score = greater satisfaction

Characteristics of Study Sample

Ethnically Diverse Caucasian 64%, Black 19%, Hispanic 11%, Asian 1%, Native American 1%, Other 2%.

Gender Male 49%; Female 51%.

How Arrived Self 12%, Family/Friend 21.5%, Police 46%, M.H. Staff 12.5%, Came another way 8%.

Mean Age 35.6 SD 9.9 years.

Severely Impaired on arrival Mean GAF score = 29.6, SD = 12.9.

Lack of group statistical differences on any variables indicate that random assignment was successful.

Characteristics of Study Group

- Focus is on those with psychiatric disorders in acute crisis at baseline, with and without co-occurring alcohol or drug use disorders and substance use disorder only who were randomly assigned to either the CRF (experimental) or the LIPF (usual).
- **Diagnosis at baseline:** #/393=%: 143 (36.4%) Psychotic Disorders including schizophrenia; 180 (45.8%) Major Mood Disorders; 50 (12.7%) Substance Use Disorders only; 20 (5.1%)'Other' inc. Dementia.

Analyses

- 59% (231/393) were unable to be interviewed at least one time posing problems for repeated measures ANOVA, so the more flexible random effects approach of hierarchical linear modeling (Bryk and Raudenbush, 1992) was used in analyses.
- In all, 70% (n = 274) of cases with at least two measurement times were included in the analyses (70% of 393 cases with a baseline interview).

Results

- Attrition: men were more likely to be lost at follow-up than were women ($p < .05$) otherwise no baseline participant variable predicted being followed-up successfully.

Table 1 Attrition: Inability to complete interview at each administration

Administration	CRP % of 196 (n)	LIPF % of 197 (n)	Total % of 393 (n)
Baseline	12 (23)	11 (21)	11 (44)
30-Day	30 (59)	43 (85)	37 (144)
6-Month	36 (71)	49 (96)	42 (167)
1-Year	38 (75)	53 (105)	46 (180)
Missing any administration	53 (104)	64 (127)	59 (231)

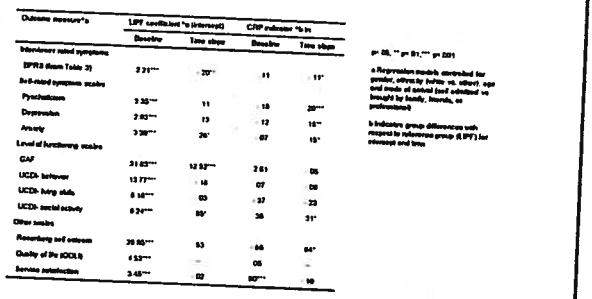
*Although percentage of both sites of those who could not be followed increased, the CRP, through assertive outreach program, was better able to help researchers locate clients than the LIPF where termination generally involved no aftercare. This produced "inverse creaming" in the CRP follow-up sample, meaning that lower functioning patients were more likely to be located at follow-up in the CRP. The attrition bias means that in the analyses to follow results of the CRP program are likely to understate its true effectiveness.

Table 2 Unadjusted mean (SE Mean) outcome variables by treatment groups at each follow up

Outcome Variable	Treatment Condition	Baseline	30 Days	6 months	1 Year
BPRS	LIPF	2.30** (.08)	2.04 (.08)	1.86 (.08)	1.98 (.07)
	CRP	2.51 (.08)	1.94 (.06)	1.90 (.06)	1.89 (.06)
HSCL-psychoticism	LIPF	3.41** (.08)	3.52 (.10)	3.60 (.10)	3.71+ (.10)
	CRP	3.09 (.09)	3.67 (.09)	3.62 (.08)	3.96 (.09)
HSCL-depression	LIPF	2.86+ (.08)	3.12+ (.10)	3.29 (.11)	3.30 (.13)
	CRP	2.77 (.83)	3.30 (.09)	3.41 (.10)	3.54 (.10)
HSCL-anxiety	LIPF	3.25* (.09)	3.40* (.10)	3.50 (.11)	3.75 (.12)
	CRP	3.09 (.08)	3.75	3.80 (.09)	3.96 (.10)
GAF	LIPF	29.41 (.86)	42.86+ (1.71)	53.08 (1.81)	57.52 (1.71)
	CRP	29.74 (.83)	46.88 (1.64)	53.02 (1.74)	57.35 (1.61)
UCDI-behavior	LIPF	7.90* (.18)	8.77 (.21)	8.79 (.25)	8.75 (.27)
	CRP	8.04 (.20)	8.86 (.21)	8.32 (.21)	8.83 (.25)
UCDI-living skills	LIPF	15.00 (.42)	16.08 (.50)	14.84 (.50)	15.80 (.56)
	CRP	15.60 (.52)	15.91 (.58)	16.15 (.48)	16.66 (.61)
UCDI-social activity	LIPF	6.43+ (.24)	7.35 (.34)	7.79 (.33)	7.50 (.37)
	CRP	[illegible]	7.17 (.28)	7.23 (.27)	7.35 (.29)
Rosenberg self esteem	LIPF	28.88 (.44)	27.47 (.52)	27.30 (.61)	27.98 (.66)
	CRP	26.02 (.44)	28.13 (.46)	29.48 (.54)	29.42 (.55)
Quality of life composite	LIPF	3.86 (.10)			4.21 (.14)
	CRP	3.73 (.09)			4.41 (.12)
Service satisfaction	LIPF		3.18*** (.07)	3.37*** (.08)	3.25*** (.09)
	CRP		3.87 (.08)	3.80 (.08)	3.86 (.07)

+, *, **, *** indicate a significant difference between program types within a given administration time at the .1, .05, .01, and .001 levels, respectively

Table 4 Fixed effects estimates of intercept by group interactions



Results of CRP vs. LIPF

- **Costs and Rehospitalizations:** based on complete County MIS data the mean length of stay during the index admission was **7.83 days in CRP** and **5.83 days in LIPF** ($p = .08$ *NS)*.
- Costs in CRP per day were **$211** and LIPF were **$665** (1993-96). Index stay involved significantly lower costs for CRP ($1,497) less than LIPF ($3,876).
- Due to readmissions to LIPF, as CRP slots were potential research beds, most readmission for CRP group were to the LIPF, thus involving greater cost.
- In year after admission, CRP had more post-discharge readmissions (averaging 1.20 vs. 0.73, $p < .01$) and there was a significant trend toward experiencing on average more total days of stay (15.1 vs. 9.4, p=.12 *NS)*, **total costs for year's treatment did not differ between groups** (Mean $10,938 vs. $10,055), offset by the lower initial (Index) stay cost at the CRP.

Results of CRP vs. LIPF: Psychiatric Symptoms and Strengths

- **BPRS (Interview rating):** baseline BPRS score did not significantly differ across treatment conditions, adjusting for covariates age, gender, race (white vs. ethnic minority), and mode of arrival.
- However, in the set of coefficients corresponding to the random slope, the significant CRP indicator by time interaction suggests that the average rate of improvement in psychiatric symptoms assessed by the BPRS ratings was greater (p=.002) in CRP than the LIPF overtime.

Results of CRP vs. LIPF

- **Costs and Rehospitalizations:** based on complete County MIS data the **mean length of stay during the index admission was 7.83 days in CRP** and **5.83 days in LIPF** ($p = .08$ *NS*).
- Costs in CRP per day were **$211** and LIPF were **$665** (1993-96). Index stay involved significantly lower costs for CRP ($1,497) less than LIPF ($3,876).
- Due to readmissions to LIPF, as CRP slots were potential research beds, most readmission for CRP group were to the LIPF, thus involving greater cost.
- In year after admission, CRP had more post-discharge readmissions (averaging 1.20 vs. 0.73, $p < .01$) and there was a significant trend toward experiencing on average more total days of stay (15.1 vs. 9.4, $p=.12$ *NS*), **total costs for year's treatment did not differ between groups** (Mean $10,938 vs. $10,055), offset by the lower initial (index) stay cost at the CRP.

Results of CRP vs. LIPF: Psychiatric Symptoms and Strengths

- **BPRS (Interview rating): baseline BPRS score did not significantly differ across treatment conditions,** adjusting for covariates age, gender, race (white vs. ethnic minority), and mode of arrival.
- However, in the **set of coefficients corresponding to the random slope,** the significant CRP indicator by time interaction suggests that the **average rate of improvement in psychiatric symptoms assessed by the BPRS ratings was greater ($p=.002$) in CRP than the LIPF overtime.**

Results of CRP vs. LIPF: Level of Functioning

- **GAF:** gains were seen for both groups throughout the follow-up period, but there was **no group by time interaction.**
- **Uniform Client Data Inventory (UCDI):** for the **Behavior** and **Living Skills** subscales, **neither group showed improvement** across the study period and **no differences were found between conditions** in either initial level or group by time interactions.
- However, the **Social Activity** subscale showed not only a **significant improvement** in the **LIPF condition** ($p < .05$, but the **CRP condition** showed **significantly larger gains** ($p < .05$).

Results of CRP vs. LIPF: Rosenberg Self-Esteem

- Analysis of the Rosenberg self-esteem scale indicated **average improvement across time only in the CRP condition**, as seen by the non-significant slope and the significant group x time interaction.

Results of CRP vs. LIPF: Life Enrichment

- Over the year long admission period, the **correlation** between **baseline and final QOLI** *Life Satisfaction* composite measures was **modest** ($r = .35$, $p < .01$).
- As there were only two measurement points for the QOLI, summary repeated measures GLM analyses were performed . Results using the 10-item DT Subjective *Life Satisfaction* composite measure showed that the time x group interaction **was not significant**, indicating both groups achieved similar gains following admission. Additionally, average group satisfaction was similar across the two measurement times.

Results of CRP vs. LIPF: Service Satisfaction

- **Service Satisfaction Scale-Residential Form:** "Baseline" measurement was 30-days post admission. The SSS-RES has 4 factor-based satisfaction subscales (a) Staff and Program, b) Medications and Aftercare, c) Day/Night Availability, and d) Facilities). All showed similarly strong effects, so results are given only for the Total Satisfaction composite.
- Average **30-day satisfaction was higher for the CRP** group than the LIPF group ($p < .001$).
- **The strong difference in satisfaction remained throughout the outcome period.**

Summary of Results

- ✓ Overall outcomes favored CRF (Greenfield, Stoneking, et al, 2008). Differences included increases in social activity subscale of the UCDI showed not only a significant improvement in the LIPF condition ($p < .05$), but the CRP condition showed significantly larger gains ($p < .05$). The CRP showed greater reductions of symptomology than the LIPF while symptom status after 12 months may not have differed greatly. While changes in self esteem and life enrichment did not differ, service satisfaction was much greater in CRP than LIPF (Greenfield et al, 2008). This is particularly noteworthy in light of the fact that treatment satisfaction differences are historically very difficult to identify in health services research (Greenfield and Attkisson, 2004).
- ✓ The primary limitation of the study is obviously attrition both in absolute terms and in the difference between treatments.
- ✓ The differential attrition between conditions is less of a concern because, as mentioned, exhaustive tests using two-stage sample selection models indicated that the primary effect of the differential attrition was to somewhat bias the study against the CRP condition (Greenfield, 1998).

Conclusions

- Consumer staffed and managed Crisis Residential Programs including certified addictions counselor(s) and incorporating assertive community aftercare are a promising effective and low-cost way to address acute and follow-up crisis situations for indigent adults diagnosed with a serious mental illness who are experiencing an acute crisis.
- Re-admissions, when occurring, were usually unable to access the limited 6-beds available in the less costly CRP. Thus, CRP cost advantages for the index admission were washed out over the 12 month period.
- Consumer staffed crisis residential facilities in Sacramento are now 12-bed facilities with daily rate of ($230) and the LIPF daily rate is ($750) as of April 2009.

END

Thanks! You may contact me at bstoneki@u.arizona.edu or (520) 626-7473 (w) or (520) 241-1599 (cell).

Thomas K. Greenfield can be contacted at tgreenfield@arg.org other key contributors have been Evan Sundby, Keith Humphreys, Jason Bond and numerous consumers who were either staffing the CRP or serving as interviewers, RAs or consultants.

Key reference: Greenfield, TK, Stoneking, BC, Humphreys, K, Sundby, E, and Bond, J (2008) A randomized trial of a mental health consumer managed alternative to civil commitment for acute psychiatric crisis, *American Journal of Community Psychology 42* (1/2):135-144