



A Time and Motion Study of SBI in Health Care Settings

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Background: SBIRT

- 2010 U.S. Patient Protection and Affordable Care Act
 - Expands health coverage (e.g., Medicaid, subsidies)
 - Mandates mental health/substance abuse coverage in plans participating in the exchanges

- Many organizations in the United States encourage adoption of SBI or SBIRT to curb substance misuse (alcohol and/or drugs)
 - American College of Surgeons Committee on Trauma
 - U.S. Preventive Services Task Force

- Momentum is behind SBI/SBIRT implementation in the United States

Background: Time and Motion Studies

- To implement SBI, stakeholders need to budget for it
 - Labor is the main driver of cost (Zarkin et al., 2003)
- Estimating labor cost requires accurately estimating duration of activities
 - Particularly important for brief activities, because of rounding bias by self-report
 - Time to support direct services is relatively large, but can be imprecisely measured
- In other health care applications, methods other than time and motion (surveys of practitioners) have been shown to be less accurate (Bratt et al., 1999)

What is a Time and Motion Study?

- Time and motion studies
 - collect data on subject activity continuously over time
 - are considered the “gold standard” of time measurement due to their accuracy
- Uses
 - Cost study
 - Design services, assess efficiency
- Focus in the current study
 - Time, not on motion
 - Cost study



Data Collection

- Two trained observers shadowed one practitioner at a time during a shift
- Consent from practitioners before recording shift time & from patients for the observed episode of care
- Standardized instrument; 18 predefined activity codes, 14 codes used for analyses

SBIRT Direct Services	Other Activities
Activity	Activity
Prescreen	SBIRT Patient-specific Support
Full Screen	GPRA Administration
Feedback	SBIRT General Support*
Brief Intervention	Non-SBIRT Productive Activities*
Brief Treatment	Evaluation Support*
Referral to Brief Treatment	Idle Time*
Referral to Treatment	Unknown*

* Code is at shift- not observation-level

Data Collection (cont.)

- 501 observations (n) of 63 practitioners in ED/trauma, inpatient (inp), and outpatient (outp) settings across 4 grantees

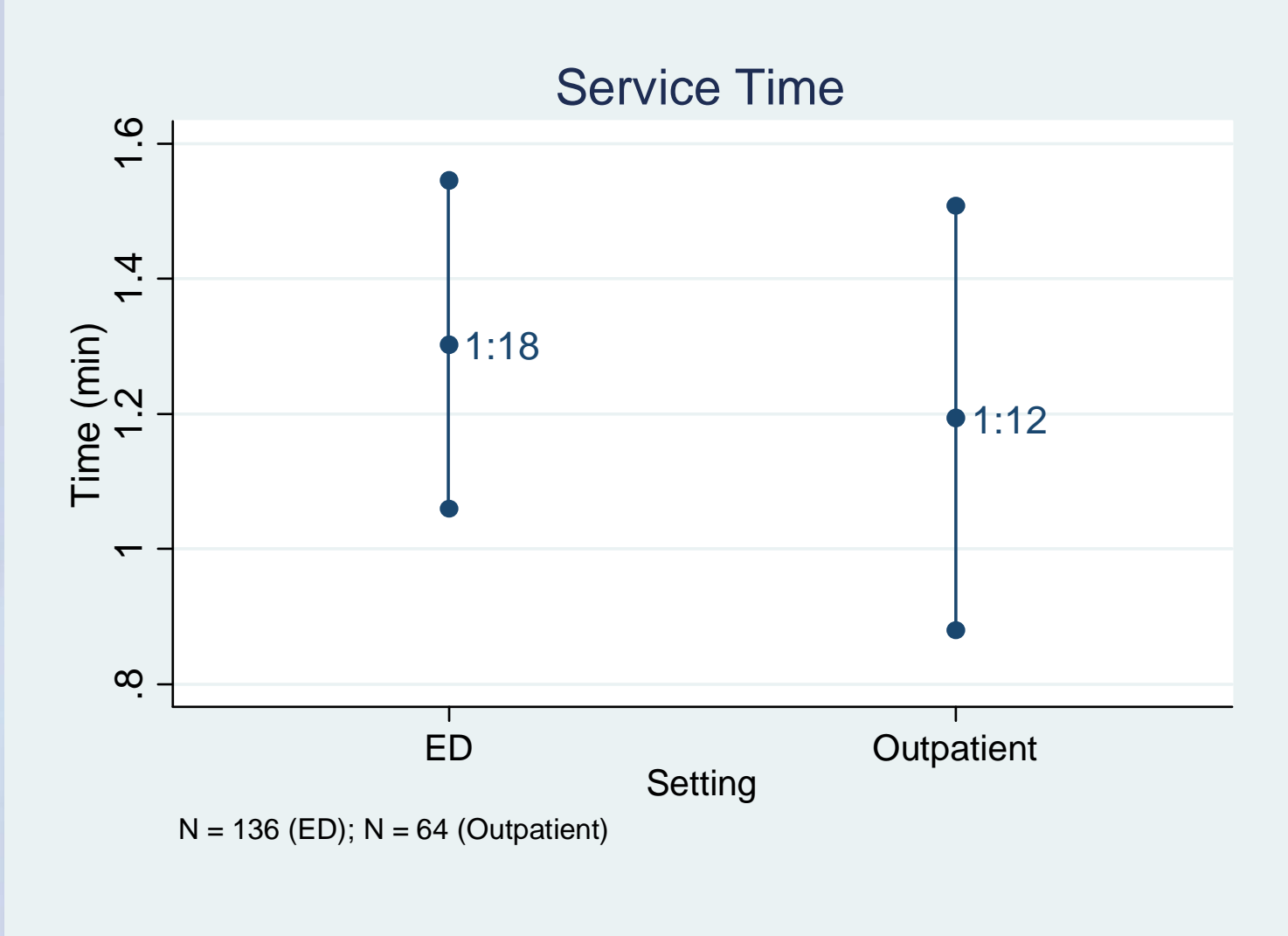
	Grantee									
	1			2			3	4		
	ED	Inp.	Outp.	ED	Inp.	Outp.	Outp.	ED	Inp.	Outp.
Sites	2	2	2	1	2	3	2	4	1	7
Practitioners	14	1	2	2	9	19	19	6	1	5
n	103	11	27	40	9	37	74	114	10	76

- 49 shifts of 1 hour or more
- Total time observed: 213 hours
- By setting: ED = 257 observations; inpatient = 30; outpatient = 214
 - Dropped inpatient from analysis because of small n

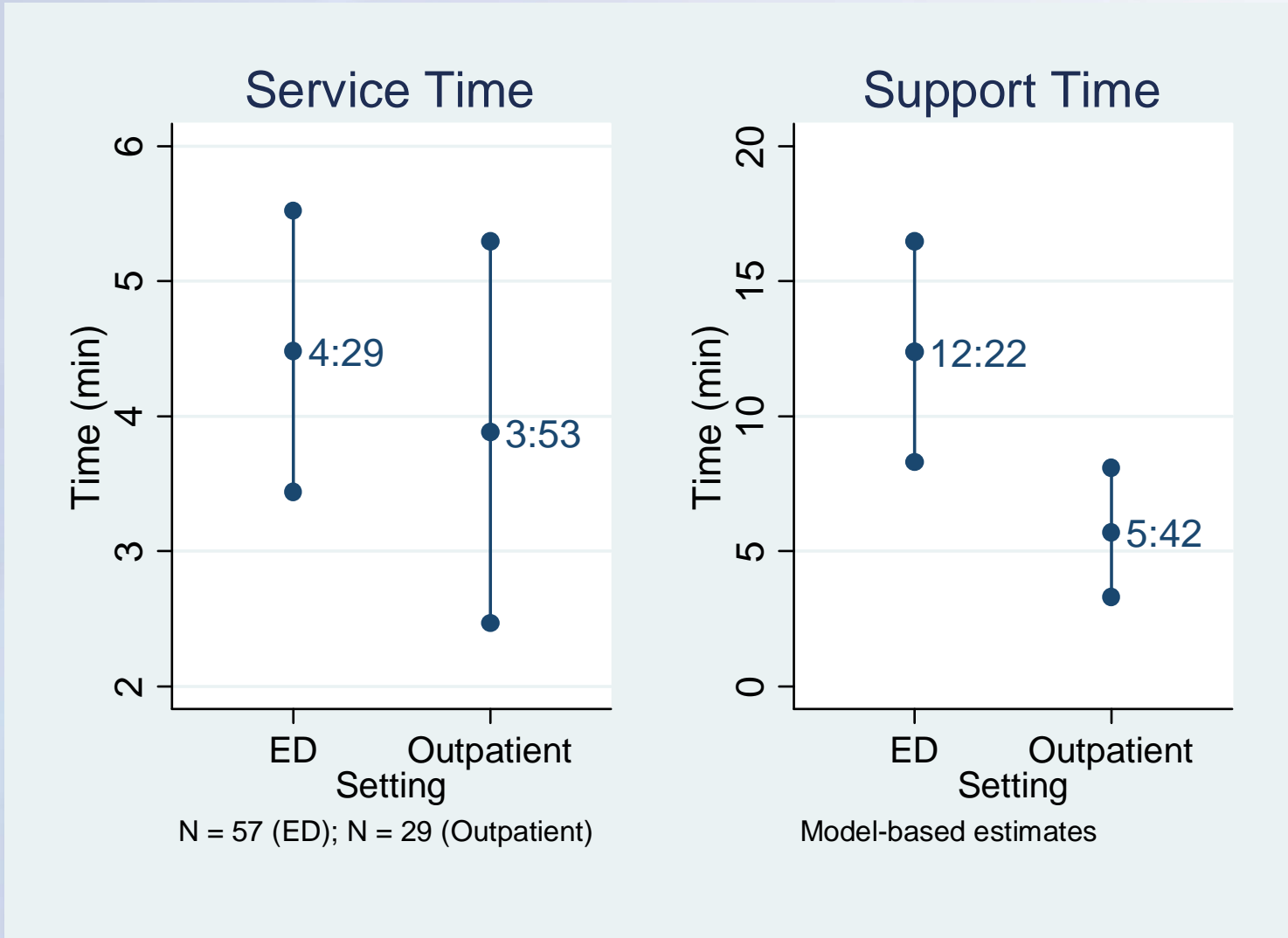
Analysis

- Calculate and present at two analytic levels
- 1. Time per service unit per patient (e.g., a screen)
 - Direct face-to-face time and all other time appropriately apportioned
 - Because support time cannot be directly linked to a particular direct service, used regression to apportion that time
 - In base case, pre-screen no support time (integrated pre-screen assumption)
 - Alternative, apportioned per above
- 2. Time per activity across a shift
 - Aggregate of all time observed over the course of the practitioner's shift

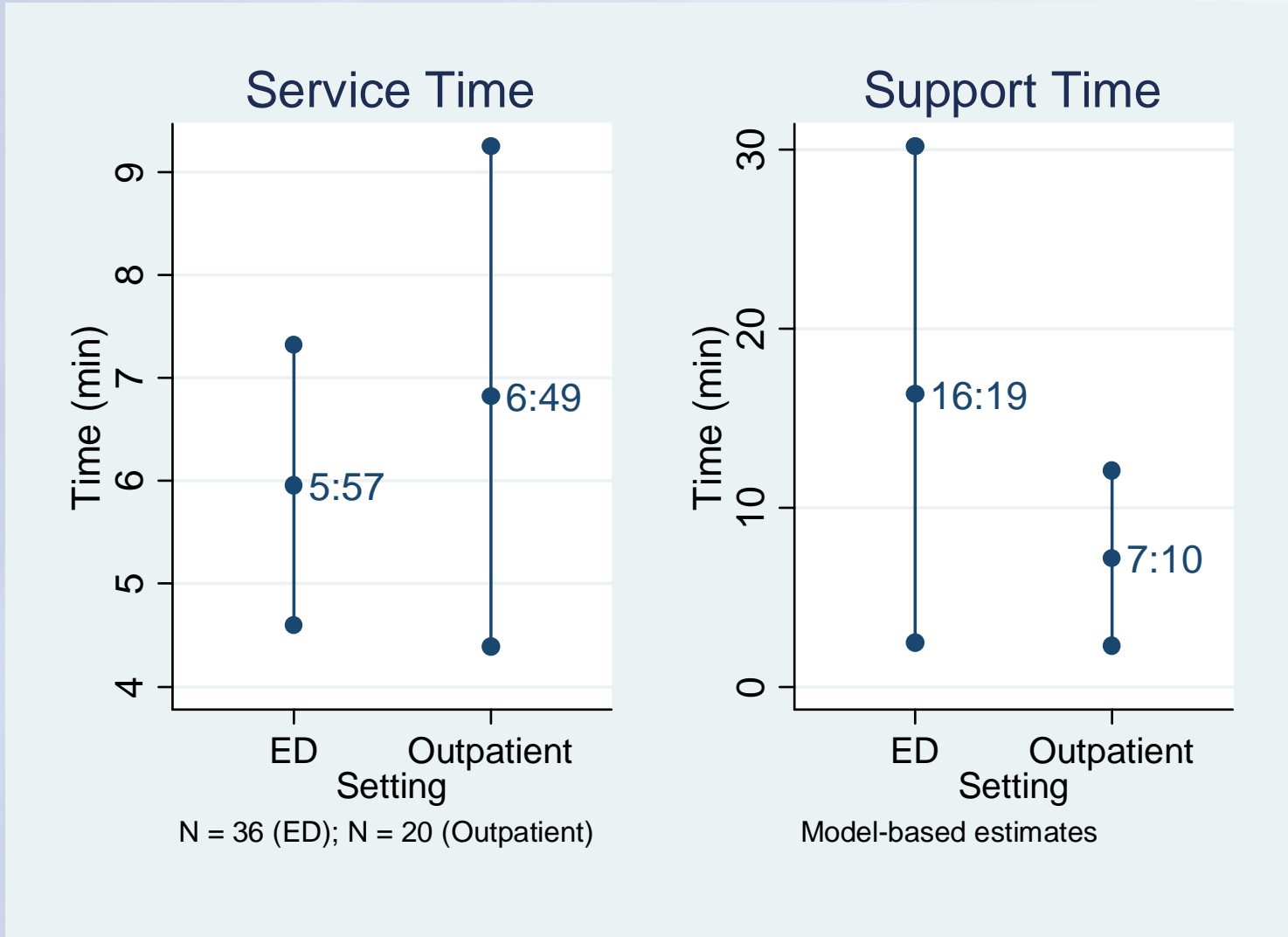
Mean Service Duration: Pre-Screen



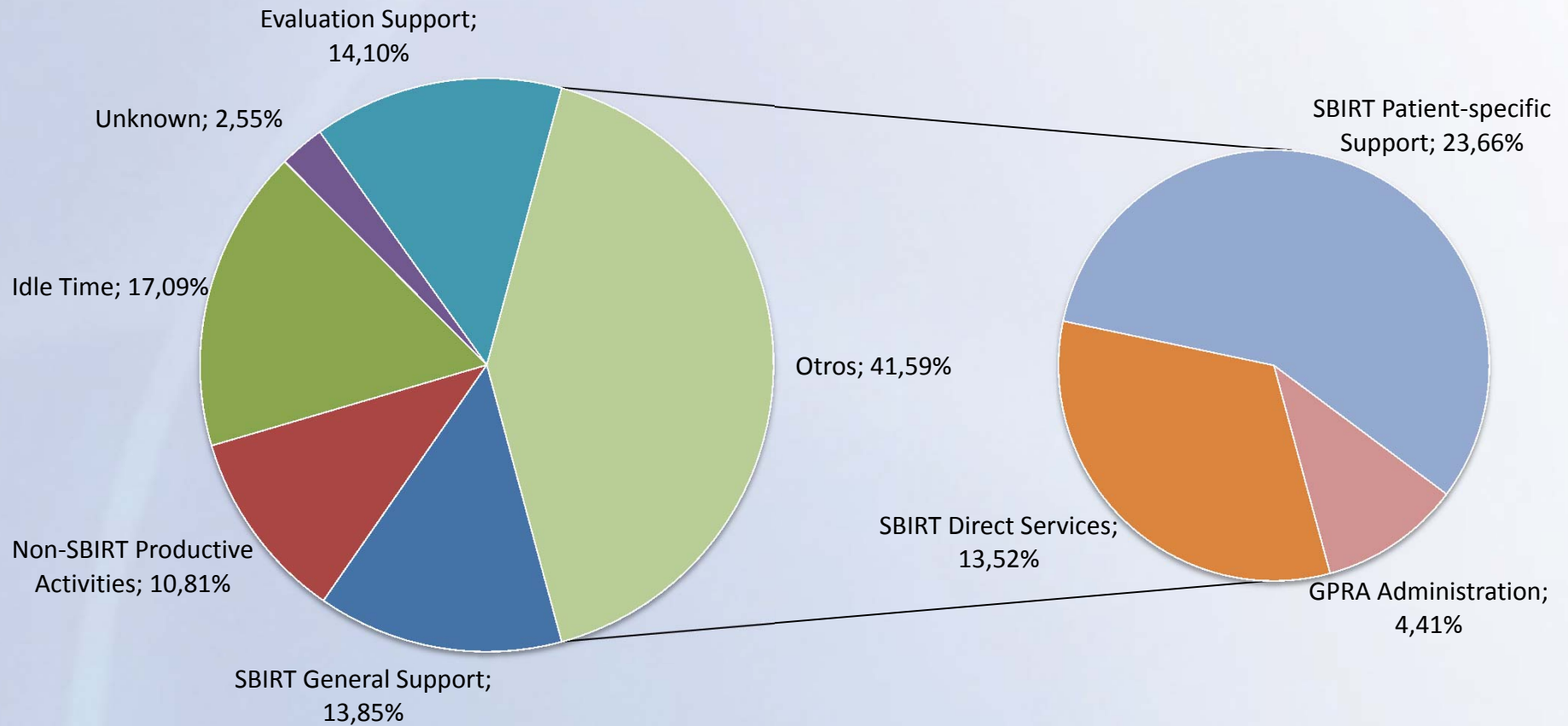
Mean Service Duration: Screen



Mean Service Duration: BI

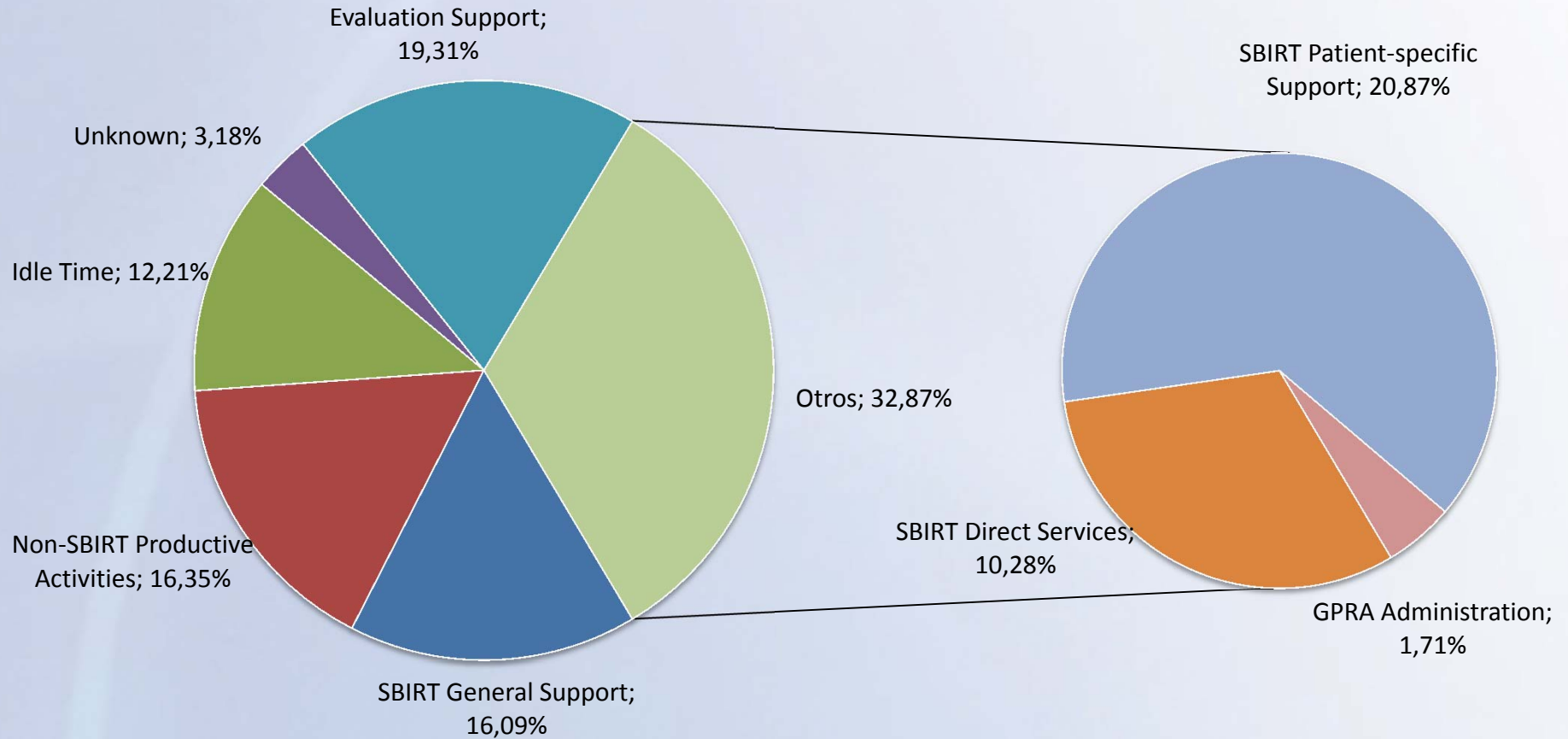


Distribution of Activities Over Shift: ED



N = 26 shifts of 1 hour or more.

Distribution of Activities Over Shift: Outpatient



N = 20 shifts of 1 hour or more.

Limitations

- Limited number of observations at selected sites of service
- Observations not conducted “in the wild”
 - Sites rearranged schedule for us, providers likely modified behavior
 - Omitted some things that were bumped, like staff meetings and non-face-face activities
 - Mitigated by separate, contextual data collected by semistructured interviews with representative stakeholders
- Desire for unit costs requires
 - The observer to distinguish between service activities
 - An imperfect allocation of support time

Conclusions

- **Duration of services compared across setting:**
 - No significant difference in service time between ED and outpatient
 - Support time higher in ED
- **Service delivery accounts for less than 50% of total shift time observed**
 - Need to contextualize with other interview data that we have available
 - Fits with other findings in broader health care literature
- **Next steps**
 - Contextualize with other data to provide a more complete picture of how staff spend time
 - Use as inputs to estimate costs
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References

- Bratt, J. H., Foreit, J., Chen, P. L., West, C., Janowitz, B., & De Vargas, T. (1999). A comparison of four approaches for measuring clinician time use. *Health policy and planning, 14*(4), 374-381.
- Zarkin, G. A., Bray, J. W., Davis, K. L., Babor, T. F., & Higgins-Biddle, J. C. (2003). The costs of screening and brief intervention for risky alcohol use. *Journal of Studies on Alcohol, 64*(6), 849–857.