Mass General Brigham

Striving towards equity in stroke outcomes data collection

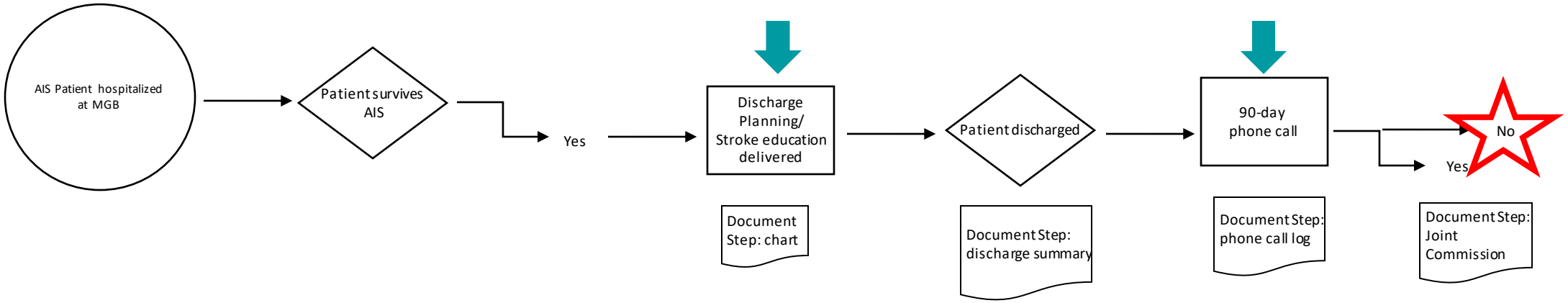
UAR Symposium: October 27, 2022

Clay Turner and Nicte Mejia
On behalf of MGB Neurology team

Problem Statement

Racial and socioeconomic disparities are extensively documented across the continuum of stroke prevention, diagnosis, care, and clinical outcomes. MGB, as a leader in acute ischemic stroke (AIS) care, recently began documenting disparities in AIS in the time preceding to or during hospitalization. While the Joint Commission requires hospitals to conduct 90-day AIS outcome phone calls, we have trouble documenting outcomes for patients from marginalized communities. Capturing and analyzing post-AIS care follow-up of patients from marginalized communities, including 90-day phone calls, is critical to assure quality and equity in post-AIS care. Until we address structural gaps such as those related to language barriers (calls are only done in English) and timing of outreach (exclusively during business hours), we cannot be sure that marginalized AIS survivors are progressing effectively.

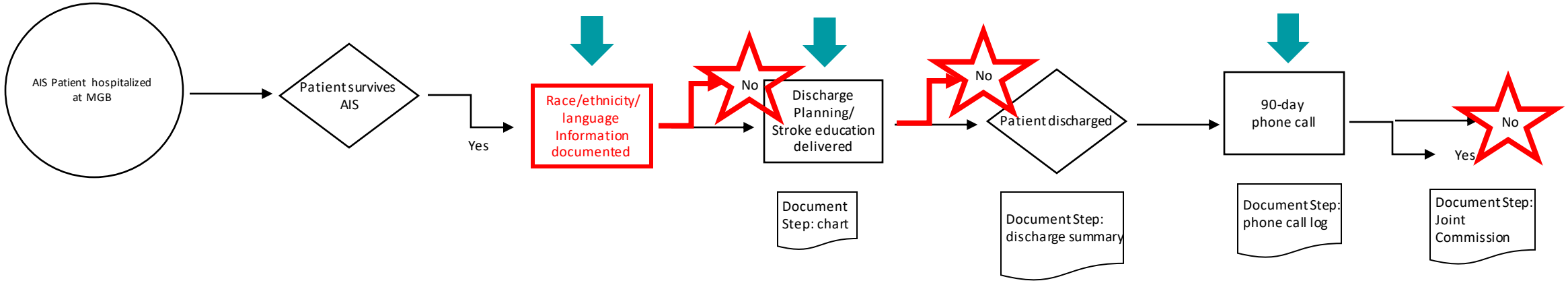
Year 1 Accomplishments - Overview



We focused on improving missingness in 90-day follow-up outcome phone calls, particularly among patients from marginalized communities. Our aim was to reduce this missingness by 50%. The first two steps in this process were to:

1) Aggregate recent data for MGH stroke patients and investigate incidence of missingness in 90-day follow-up data as it pertains to race/ethnicity, language, and zip code
2) Employ a part-time community health worker to help improve missingness on the front end (while hospitalized) and back end (making calls with interpreter services support) [green arrows above]

Year 1 Accomplishments – Overview, cont.

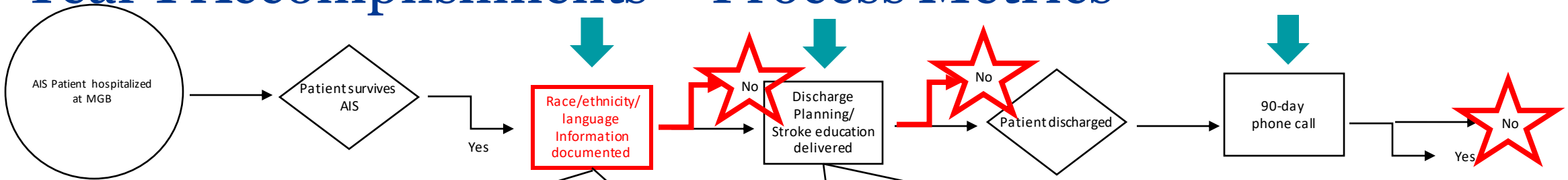


We encountered delays obtaining the desired data (needed multiple sources and harmonizing patient-level data), but during this process we learned that missingness was not limited to 90-day phone calls, but was prevalent in multiple areas among our patients, notably race and ethnicity, as well as disparities in receiving stroke education prior to discharge.

Addressing our primary aim – to improve missingness of 90-day follow-up data – we need to address missingness and disparities in key in-hospital areas prior to discharge to tackle key root causes for subsequent 90-day follow-up data missingness.

We are in the process of hiring a community health worker but have met challenges.

Year 1 Accomplishments – Process Metrics



Data Missingness by demographic n (%)	90-day mRS (n=555)	Received stroke education (n=729)
Race	68 (12%)	70 (10%)
Ethnicity	121 (22%)	107 (15%)
Language	26 (5%)	5 (<1%)

Table 1. Demographic Data Missingness

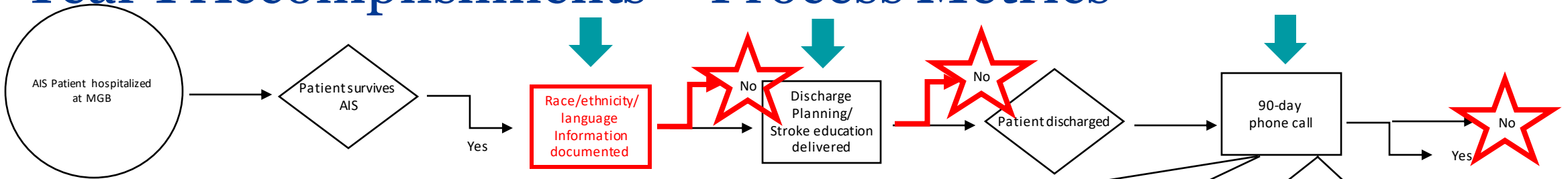
Data missingness for race and language was higher than expected.

Patients with unknown/missing race, ethnicity, and language had the lowest proportion of receiving stroke education.

	Received Education		No Education/Missing	
Variables	count	%	count	%
Race				
Black	48	82.76	10	17.24
Other Race	84	77.78	24	22.22
White	378	77.62	109	22.38
Declined	4	66.67	2	33.33
Unknown/Missing	51	72.86	19	27.14
All Patients	565	77.5	164	22.5
Ethnicity				
Hispanic	50	84.75	9	15.25
Non Hispanic	442	78.51	121	21.49
Unknown/Missing	73	68.22	34	31.78
All Patients	565	77.5	164	22.5
Language				
English	473	78.31	131	21.69
Non English	90	75.00	30	25.00
Unknown/Missing	2	40.00	3	60.00
All Patients	565	77.5	164	22.5

Table 2. Receipt of Stroke Education by Race, Ethnicity, and Primary Language

Year 1 Accomplishments – Process Metrics



Missingness was highest among patients identifying as Black and with unknown/missing race or Hispanic ethnicity.

Missingness by language was also highest among unknown/missing group.

90-day mRS	Available mRS		Missing mRS	
Variables	count	%	count	%
Race				
Black	25	69.44	11	30.56
Other Race	38	77.55	11	22.45
White	301	75.82	96	24.18
Declined	4	80.00	1	20.00
Unknown/Missing	50	73.53	18	26.47
All Patients	418	75.32	137	24.68
Ethnicity				
Hispanic	21	75.00	7	25.00
Non Hispanic	308	75.86	98	24.14
Unknown/Missing	89	73.55	32	26.45
All Patients	418	75.32	137	24.68

Table 3. 90-day mRS Missingness by Race and Ethnicity

90-day mRS	Available mRS		Missing mRS	
Language	count	%	count	%
English	345	75.00	115	25.00
Non English	57	82.61	12	17.39
Unknown/Missing	16	61.54	10	38.46
All Patients	418	75.32	137	24.68

Table 4. 90-day mRS Missingness by Primary Language

Year 1 Accomplishments – Clinical Outcome Metrics

While the first two phases of our project do not directly address clinical outcomes, this will be a metric we will follow for future interventions.

	Good Outcome		Bad Outcome	
Variables	count	%	count	%
Race				
Black	7	1.67	18	4.31
Other Race	8	1.91	30	7.18
White	70	16.75	231	55.26
Declined	0	0.00	4	0.96
Unknown/Missing	13	3.11	37	8.85
All Patients	98	23.44	320	76.56
Ethnicity				
Hispanic	5	1.2	16	3.83
Non Hispanic	76	18.18	232	55.50
Unknown/Missing	17	4.07	72	17.22
All Patients	98	23.44	320	76.56

Table 5. 90-day mRS Severity by Race and Ethnicity

Note: Among those with available mRS (n=418). Good outcome is defined as mRS score of 0-2 and bad outcome is defined as mRS score of 3-6. Chi square test for significance used for p values.

Year 1 Challenges

Challenge 1: Difficulty obtaining desired data
- Had to pull from multiple internal, departmental sources and EMR
- Harmonized data on patient-level by MRN

Challenge 2: Unable to hire desired data manager
- Initially tried to recruit internal data managers (budgeted to do so)
- Internal candidates did not have bandwidth to take on new project
- Saved by UAR data managers! Thank you!!!

Challenge 3: High missingness for demographic data
- Worked with what we had
- Redirected some of the goals of our intervention (community health worker)

Challenge 4: Difficulty hiring community health worker
- Delayed by working through challenges 1 to 3
- In the context of the pandemic related workforce challenges

Looking Ahead: Plans for Year 2

We hoped to have a community health worker by now but are enthusiastic we are making progress towards this. In Year 2, we plan to have a community health worker helping to achieve our aims.

However, we made significant progress learning how/where to obtain the data we need to track our outcomes. Further, we discovered other opportunities to improve missingness of our patient data relevant to our primary aim.

We envision the tasks of the community health worker to be:

1) Work with patients and inpatient stroke team to improve missingness prior to discharge
    - Participate in multidisciplinary rounds in the morning with the inpatient stroke team
    - Ensure all demographic and contact data complete for each patient
    - Work with team, nursing, case management, and social work to identify patients with specific needs/education
2) Assist stroke data management team to complete 90-day follow up calls
    - Weekly check-in with data management team to identify patients with missing calls
    - Conduct calls at differing days/times and with interpreter services support

Appendix

Team Members

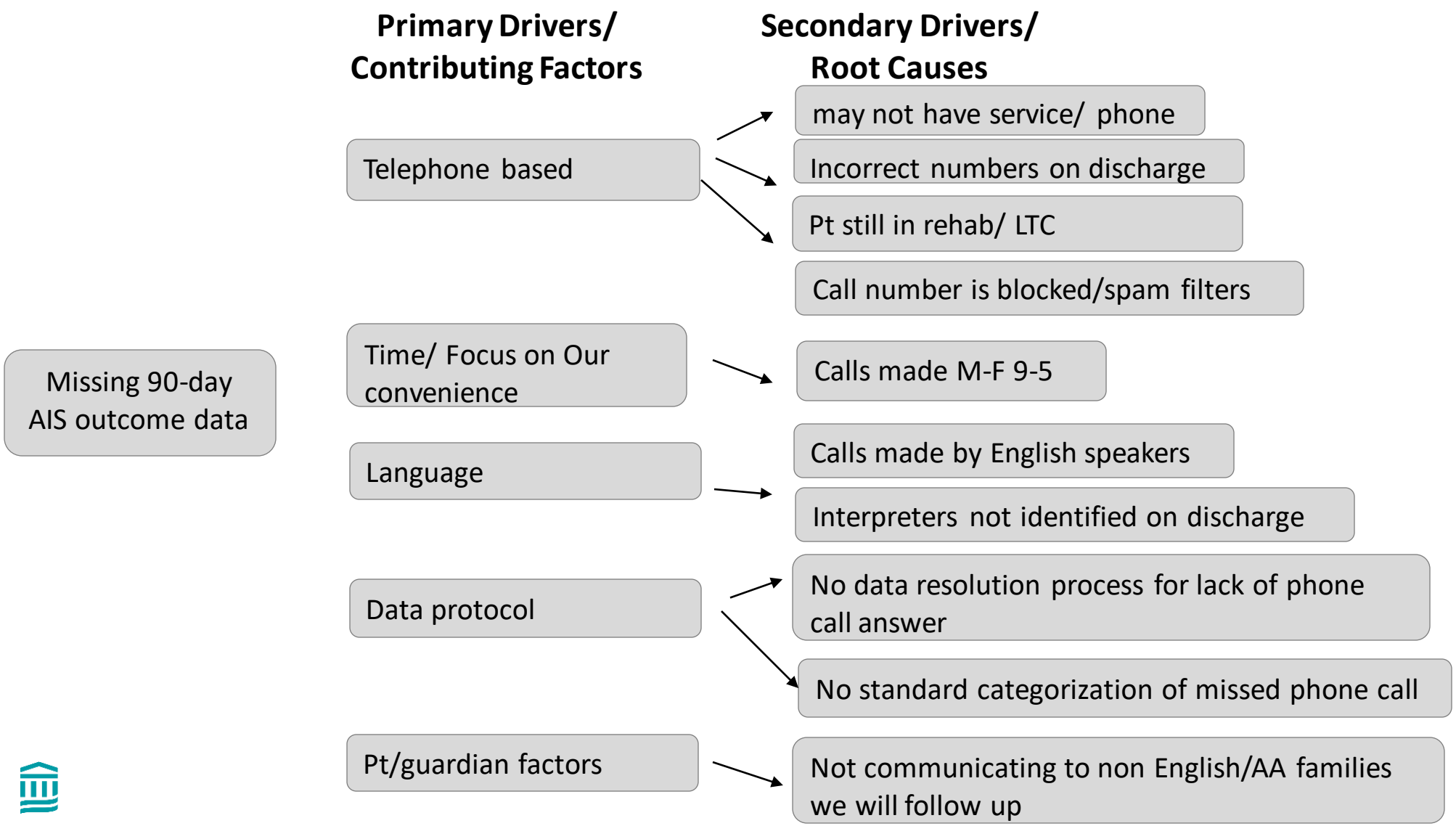
Name	Credentials	Role/Discipline (i.e. hospitalist, nurse manager, analyst, etc.)	Note 'yes' if a Resident	Note "yes" if MD/Clinician met participation requirements*
Team Members:				
Clay Turner	MD MPH	Stroke clinician and researcher		Yes
Nicte Mejia	MD MPH	Neurologist and health disparities researcher		Yes
Natalia Rost	MD MPH	MGH Chief of Stroke		No
Christopher Anderson	MD MSc	BWH Chief of Stroke		No
Altaf Saadi	MD MSc	Neurologist working in community		No
Angeliki Vrotsas	MD	Neurologist working in community		No
Lee Schwamm	MD	MGB VP of Virtual Care		No
Jocelyn Carter	MD	MGH Hospitalist		No
Coach: Dr. Kristin Hung				

Aim Statement

Our aim is to decrease missing MGB 90-day outcome data in AIS from 20% to 10% by September 30, 2022.

First, we aim to characterize disparities in 90-day post-AIS hospitalization phone call data collection based on patients' age, sex, race, ethnicity, language, and zip code. Next, we aim to identify patients at-risk for missing follow up and implement interventions to improve follow-up care and clinical outcomes data collection through the use of a community health worker.

Driver Diagram: Contributing Factors



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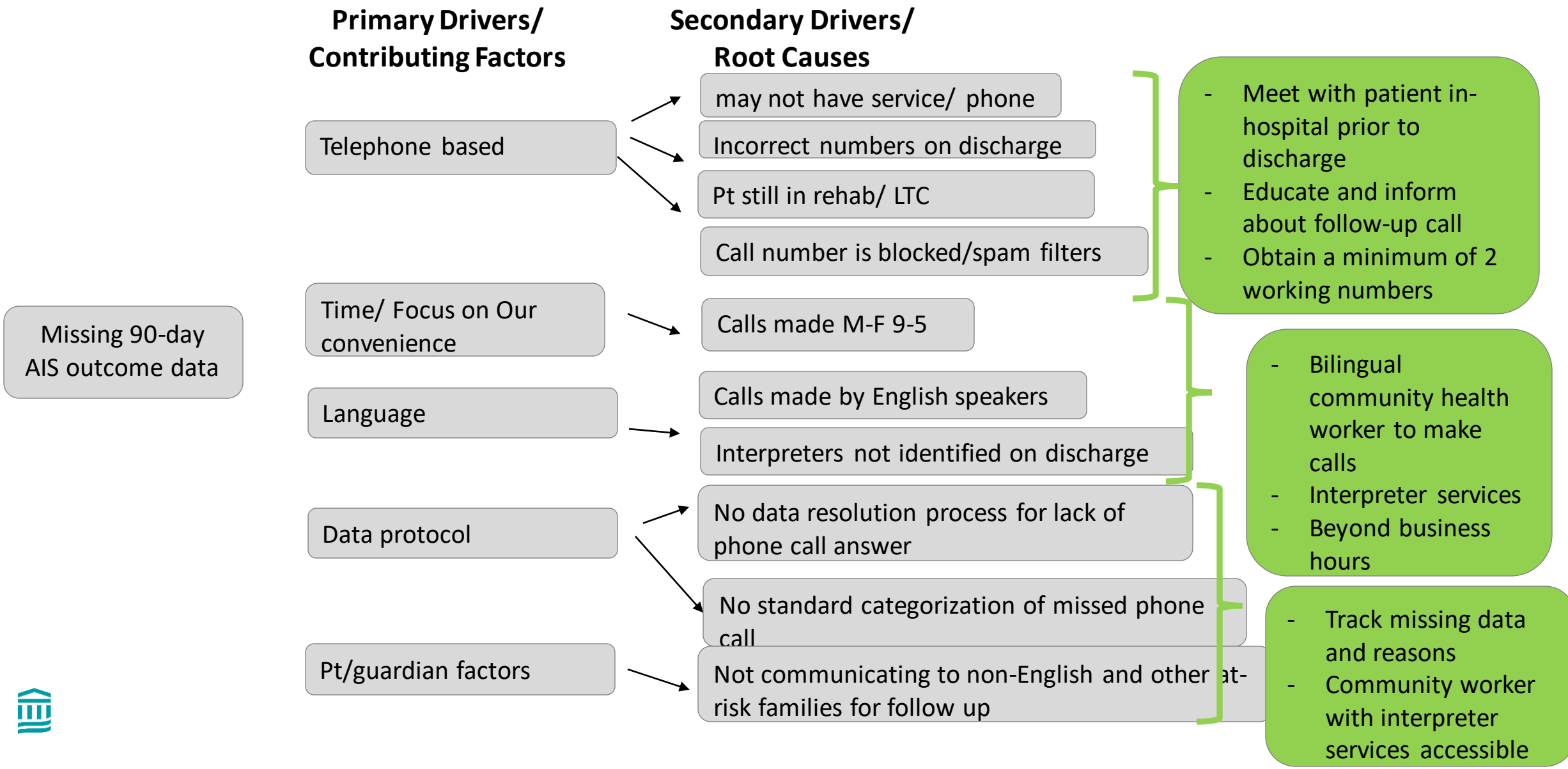

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