

# What is the Potential of Community Paramedicine to Fill Rural Health Care Gaps?

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# Acknowledgements and Disclaimer

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# Study context

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Community Paramedicine (CP) has been promoted as a strategy to help rural communities, which frequently experience significant health care disparities and service gaps.

CP addresses the Institute for Healthcare Improvement's Triple Aim:

- Improve patient experiences of care
- Improve population health
- Reduce health care costs

...and a fourth aim (the “Quadruple Aim”\*):

- Improving the work life of health care providers

\*Bodenheimer, T., & Sinsky, C. (2014). From Triple to Quadruple Aim: care of the patient requires care of the provider. *The Annals of Family Medicine*, 12(6), 573-576.

# Study aims

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Improve our understanding of CP programs that serve rural communities:

1. Organizational characteristics
2. Goals, target populations, and services offered
3. Integration into community systems of health care and human services
4. Evidence to demonstrate success

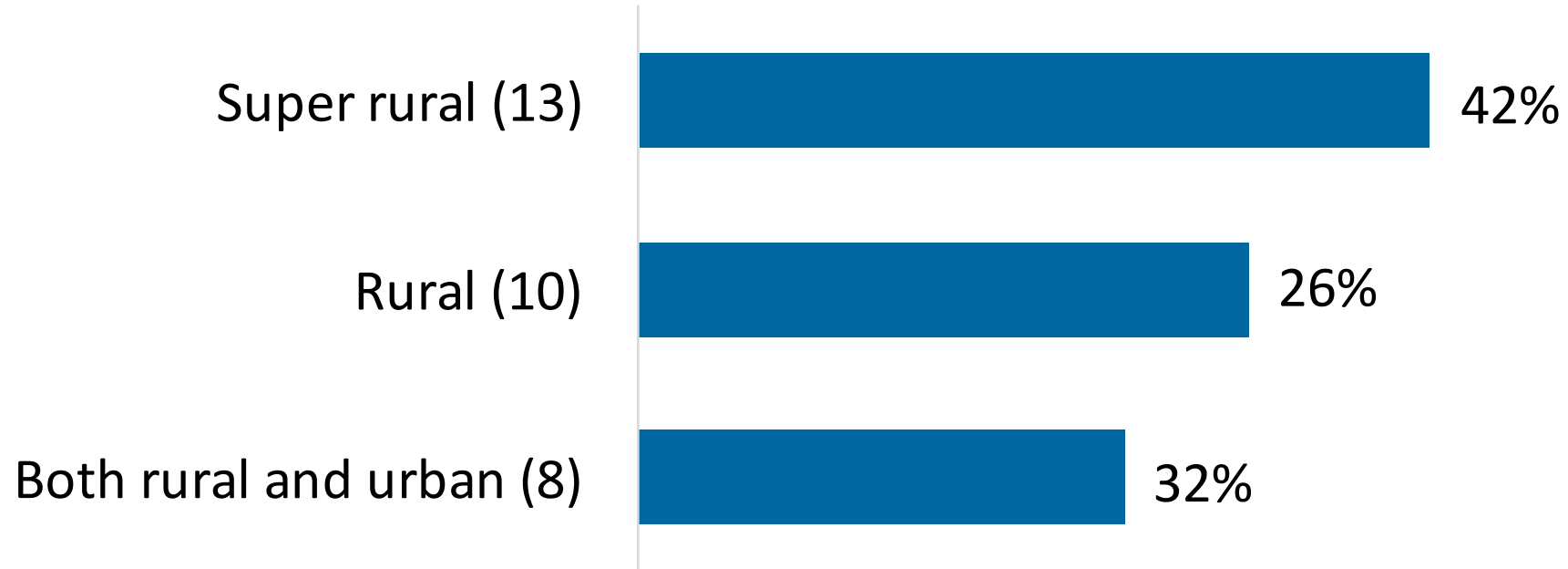
# Methods

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1. We compiled a list in December 2014 of 86 CP programs using articles, reports, presentations, and Web searches.
2. We identified program and service area ZIP codes, classifying them using Rural-Urban Commuting Area (RUCA) codes.
3. We conducted structured interviews (about 30 minutes) with 36 program leaders (100% response):
  - 31 programs serving rural communities
  - 5 urban programs that had generated evidence on outcomes

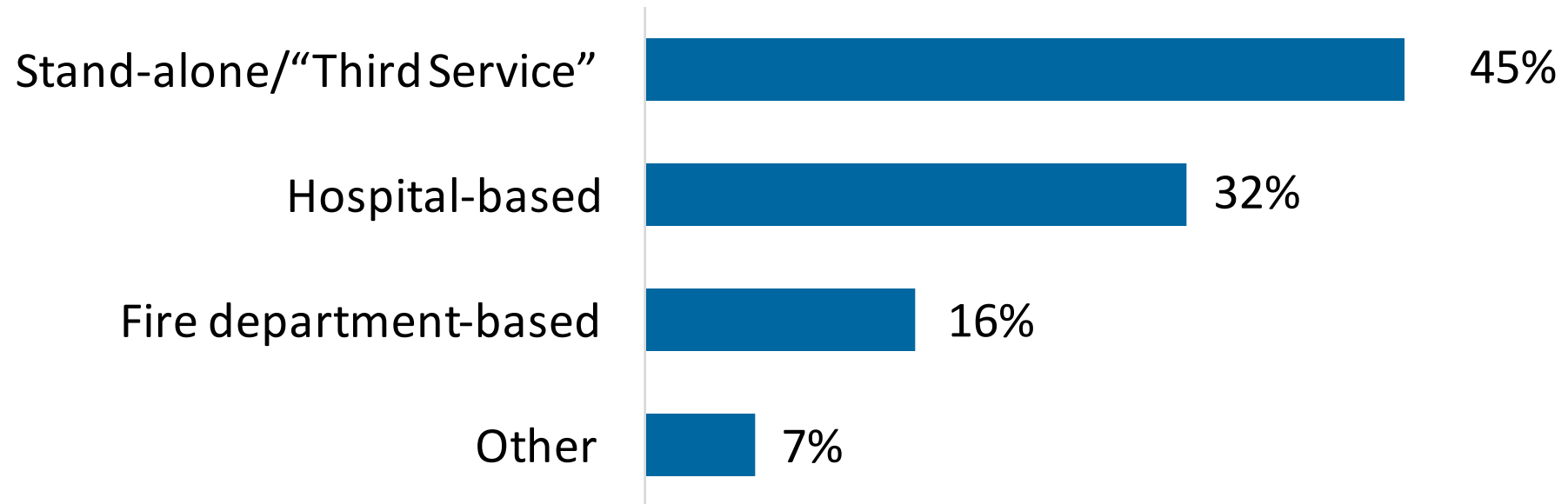
# Final sample

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# Paramedic service organization type

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# Program characteristics

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Service area population:

- 35,000 (median), from 1,950 to 2.3 million

Time CP program in operation:

- 29 months (median), from 2 months to 13 years

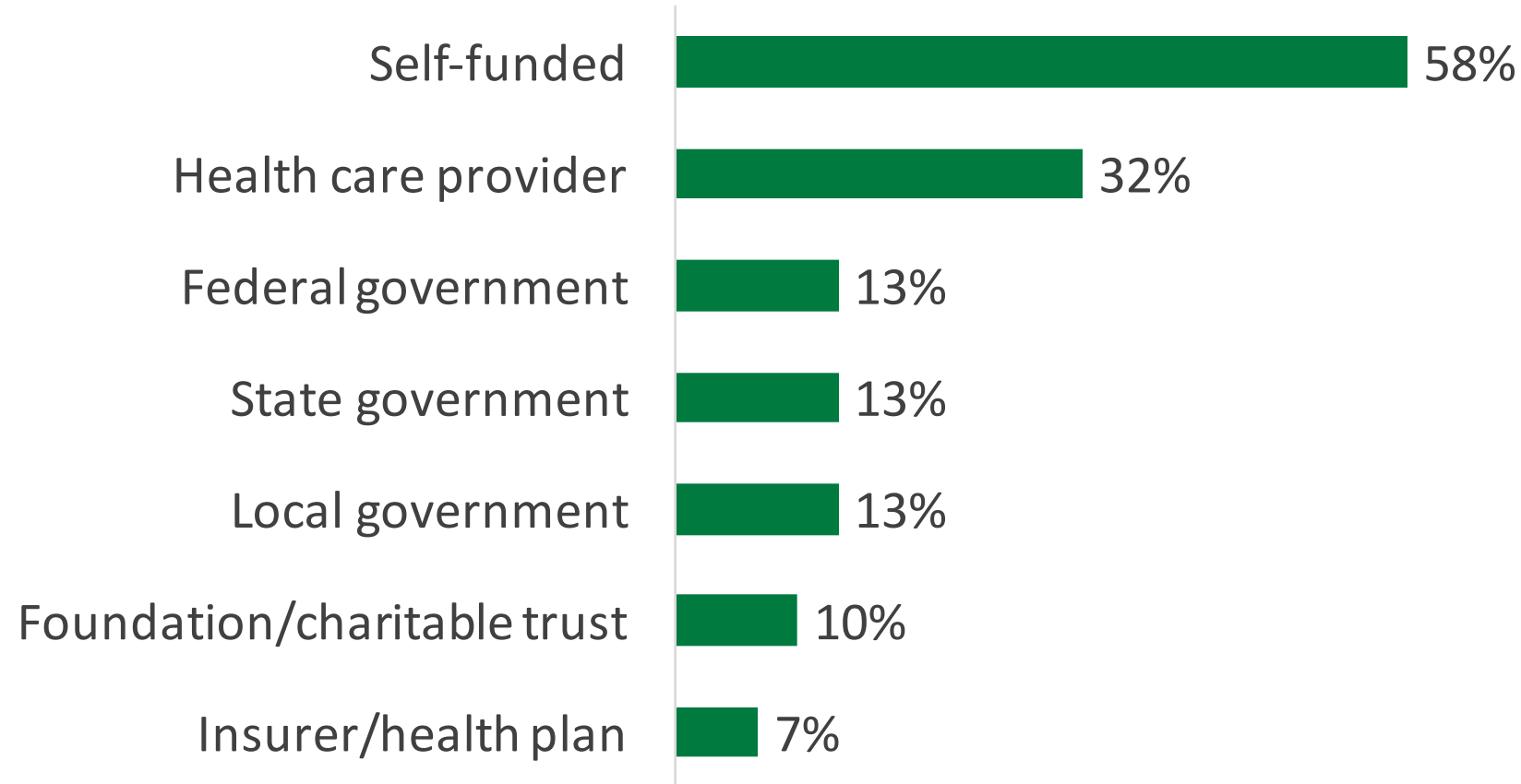
Staffing:

- 7 community paramedics each providing 0.4 FTEs (median), from 1-60 persons and 0.1-10.0 FTEs




















## Funding\*: More than 3/4 were self-funded only or relied on a single external funding source.

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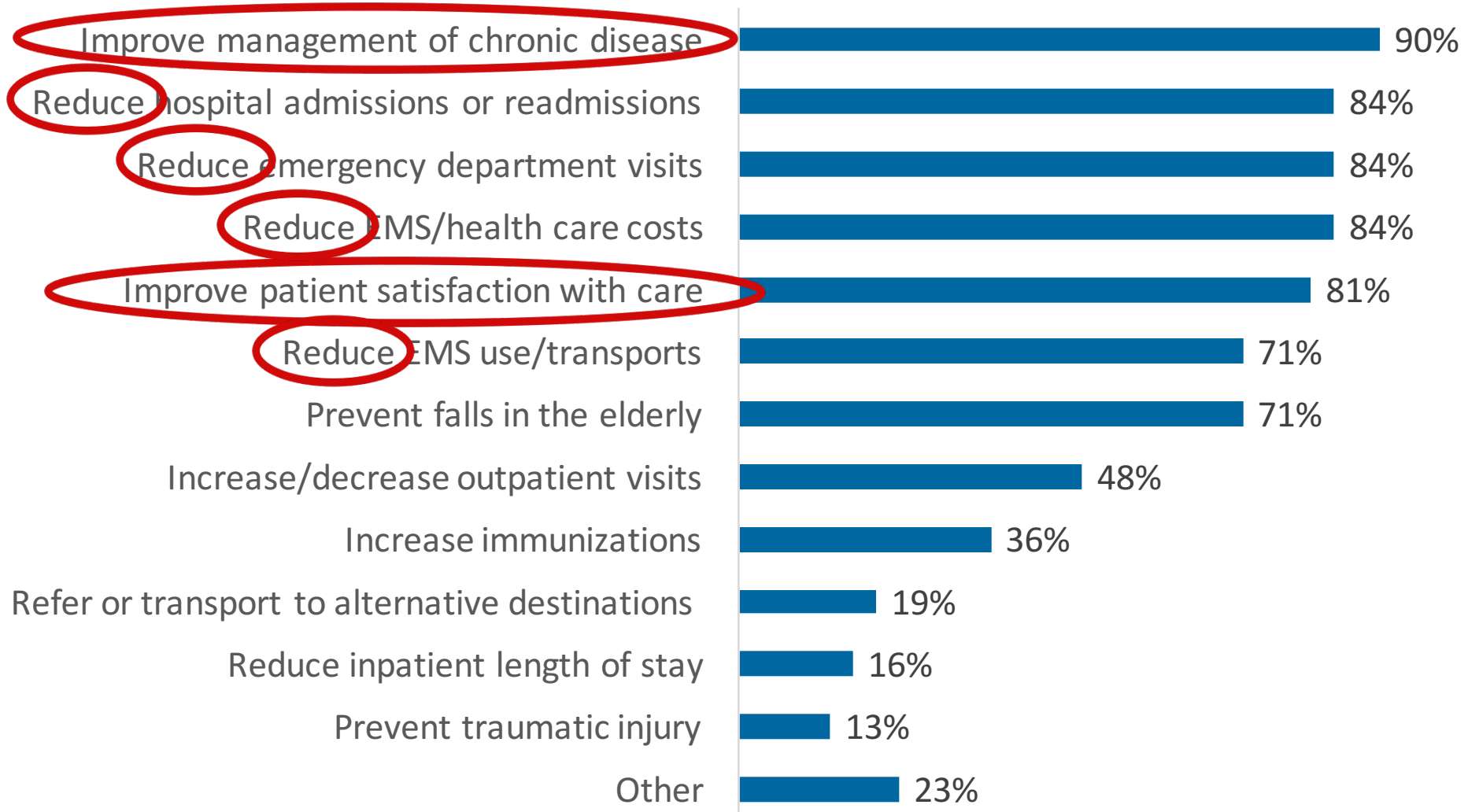
\*Programs could report multiple funding sources

# Program goals and the Triple Aim

	Improve patient experience	Improve population health	Reduce costs
Improve patient satisfaction with care			
Improve management of chronic disease			
Prevent falls in the elderly			
Increase/decrease outpatient visits*			
Increase immunizations			
Prevent traumatic injury			
Reduce hospital admissions or readmissions			
Reduce ED visits			
Reduce EMS/health care costs			
Reduce EMS use/transport			
Refer or transport to alternative destinations			
Reduce inpatient length of stay			

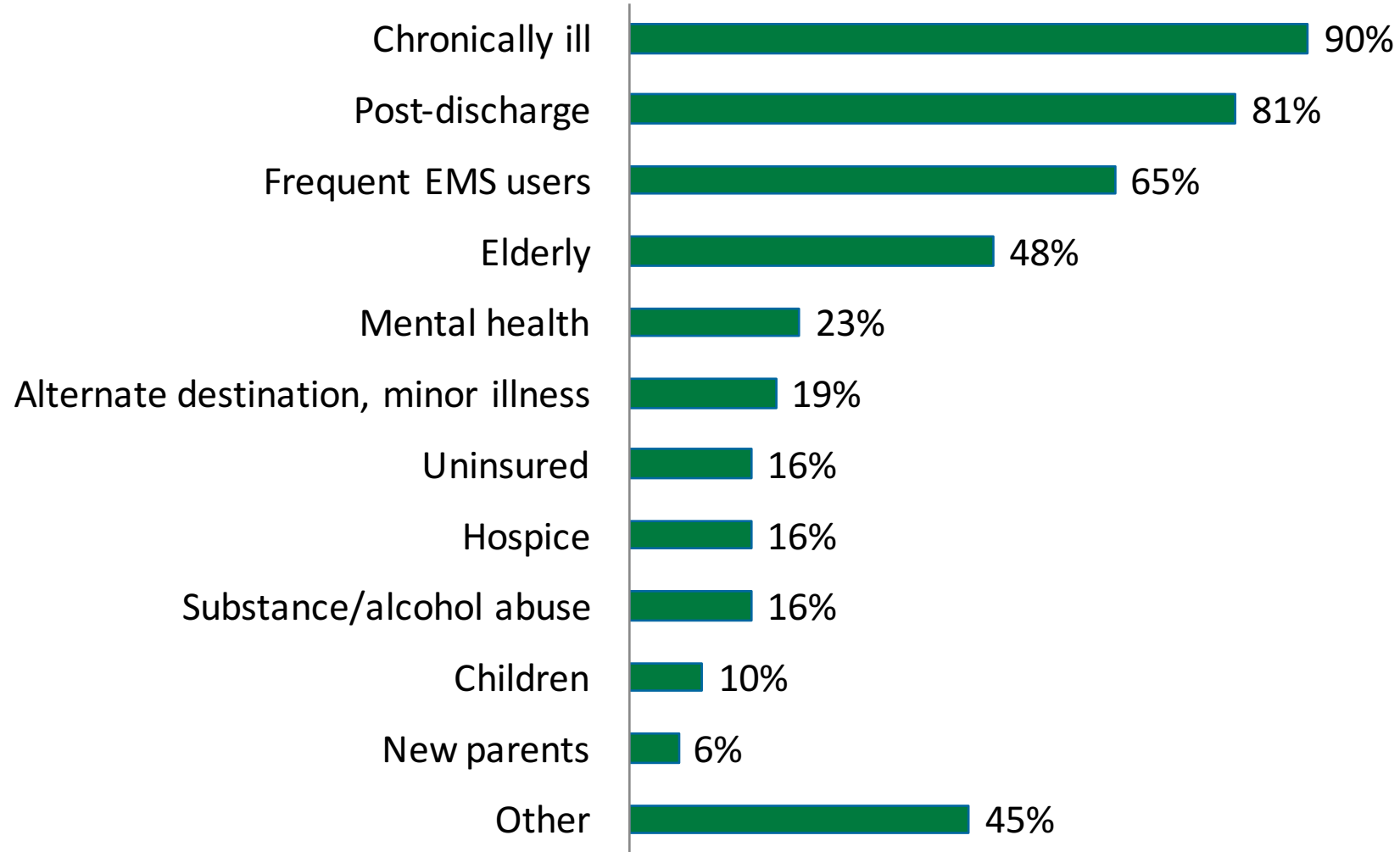
\*Programs aim to connect patients to appropriate care, which can mean increasing or decreasing outpatient visits.

# Program goals

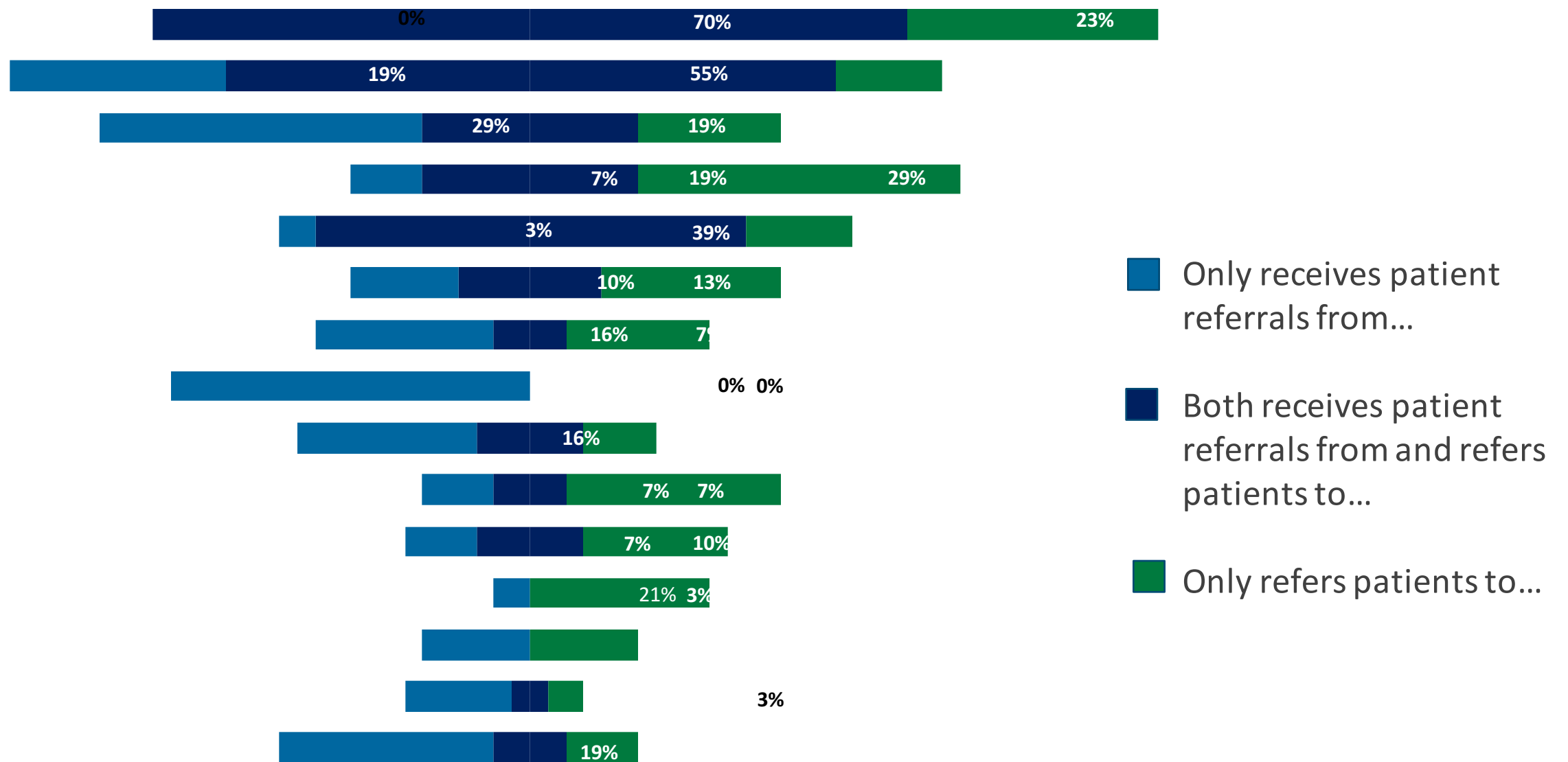


# Target populations

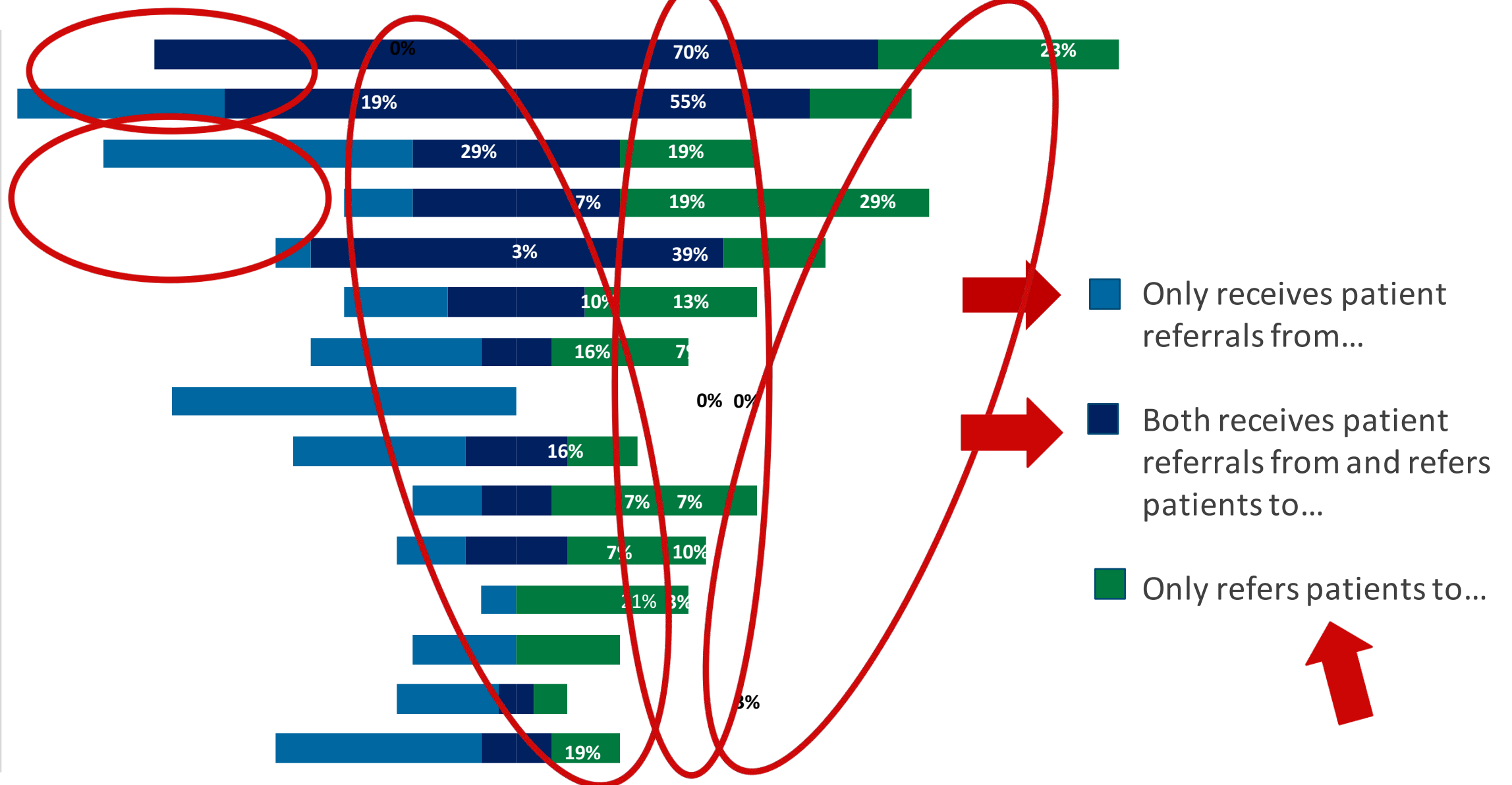
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# Patient referral sources and destinations



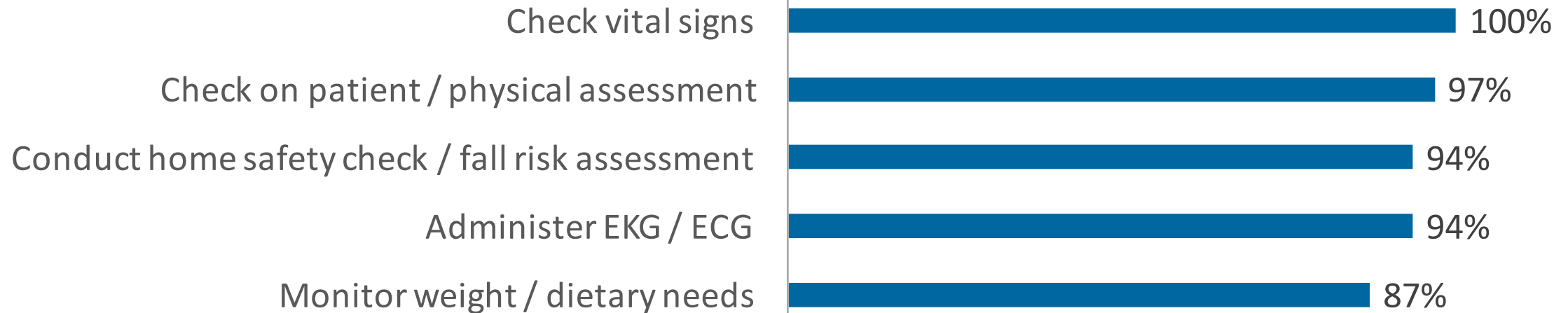
# Patient referral sources and destinations



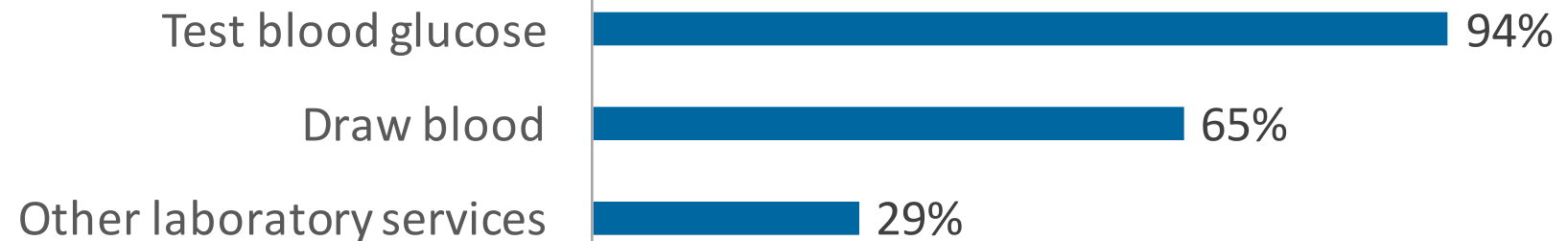
# Program services

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## Assessment services



## Laboratory services



# Program services (continued)

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## Preventive care services



## Acute care services

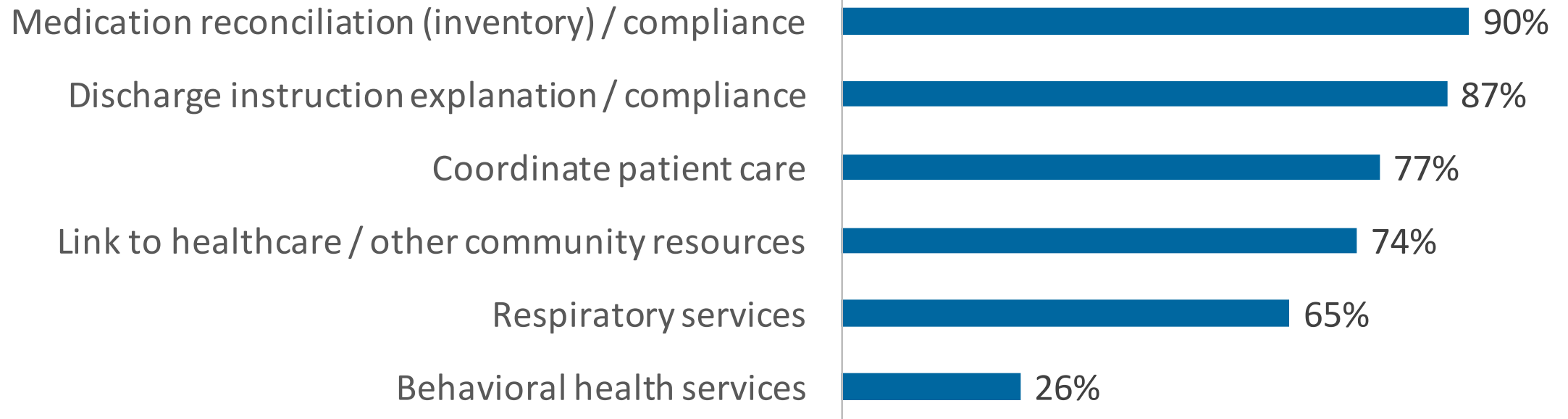




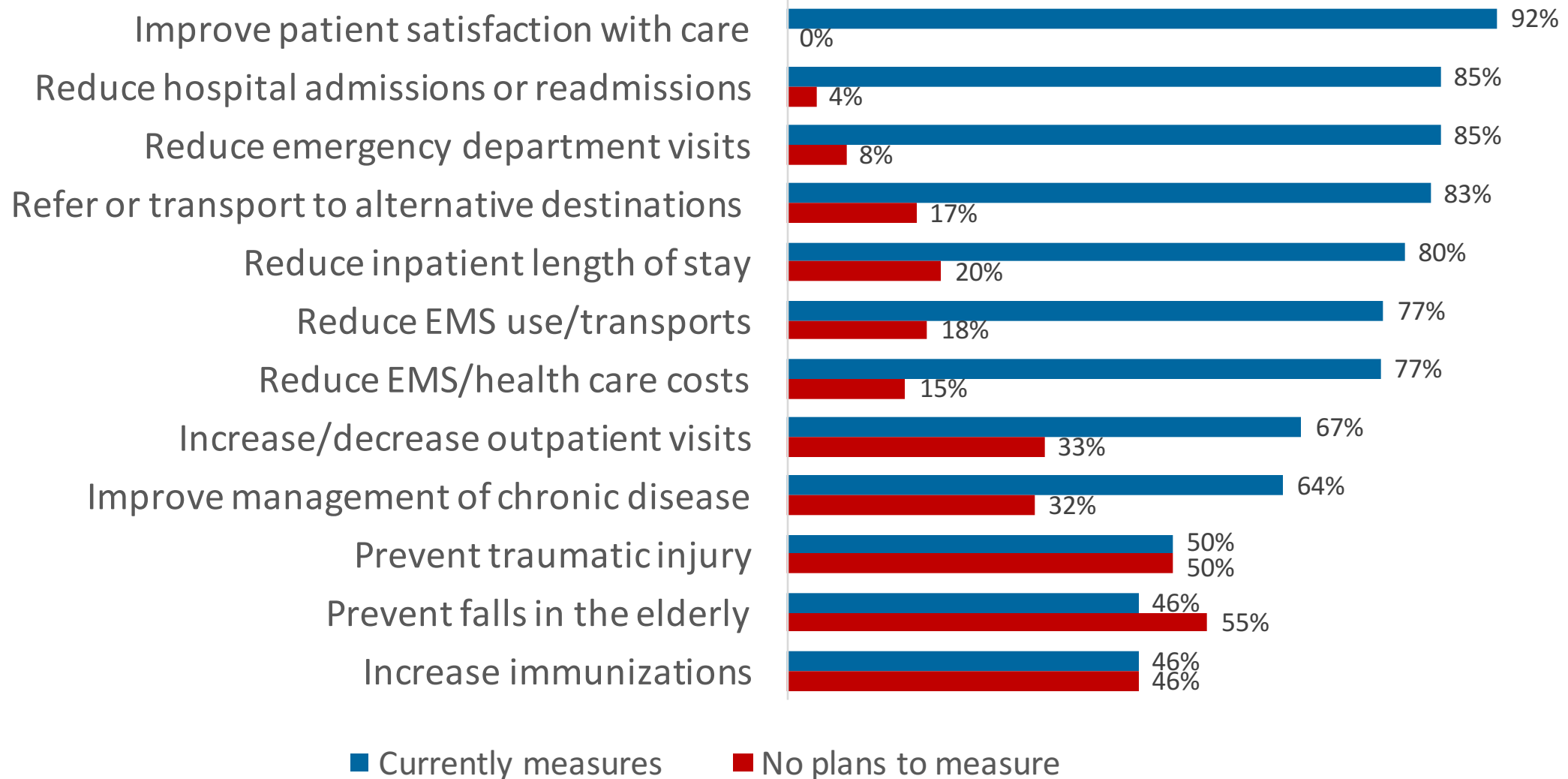
# Program services (continued)

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## Other services



# Of programs aiming for each goal, how many are measuring?



# Evaluation findings are promising but *preliminary*!

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20/31 programs had generated outcome data

13 (42%) programs provided the study team their evaluation outcomes.

Most evaluations were internal and informal:

- One longitudinal case-control design; otherwise no control groups or other rigorous methods

# Evaluation findings

Desired outcome	Number of programs reporting	Aggregate outcomes	Selected individual program outcomes reported
Reduce hospital admissions/ readmissions	8	655 avoided (N=5)	<ul style="list-style-type: none"><li>• 76% reduction in total hospital readmissions</li><li>• 44% reduction in readmissions for heart failure patients</li><li>• 41% reduction in readmissions for CP patients</li><li>• 0 readmissions in the first two quarters of 2015</li></ul>
Reduce EMS/healthcare costs	8	\$7,461,981 savings (N=7)	<ul style="list-style-type: none"><li>• \$8,500 savings per CP patient</li><li>• \$1.5 million savings through transport to alternate destinations</li><li>• CP program saved 33% more than it cost to operate</li></ul>
Reduce EMS use/transport	6	1,428 avoided (N=5)	<ul style="list-style-type: none"><li>• 37% reduced use for top 15 frequent EMS users</li><li>• 206 transports avoided</li></ul>

# Evaluation findings

Desired outcome	Number of programs reporting	Aggregate outcomes	Selected individual program outcomes reported
Reduce emergency department (ED) visits	5	1,552 avoided (N=3)	<ul style="list-style-type: none"><li>· 1,121 visits avoided</li><li>· 58.7% reduction in avoidable visits</li><li>· 50% reduction in ED usage by CP patients</li></ul>
Improve patient satisfaction with care	3	--	<ul style="list-style-type: none"><li>· Mean satisfaction scores exceeded 4.9/5</li><li>· 99% would recommend the program to someone else</li></ul>
Increase or decrease outpatient visits	2	178 prevented (N=2)	<ul style="list-style-type: none"><li>· 11 wound dressing changes at home may have prevented office visits</li></ul>
Increase immunizations	2	327 vaccinations (N=2)	--

# Evaluation findings

Desired outcome	Number of programs reporting	Aggregate outcomes	Selected individual program outcomes reported
Improve management of chronic disease	2	--	<ul style="list-style-type: none"><li>85% of diabetic patients showed decreased blood glucose; 70% of hypertension patients showed decreased blood pressure; COPD patients decreased ED admissions for shortness of breath by 91.6%</li></ul>
Improve quality of life	2	--	<ul style="list-style-type: none"><li>67% of patients reported the same or better health status as at first CP visit; 59% with the same or fewer physical limitations</li><li>7% increase on standardized quality of life instrument</li></ul>
Prevent falls in the elderly/prevent traumatic injury	2	--	--
Refer or transport to alternative destinations	1	502 transports (N=1)	<ul style="list-style-type: none"><li>\$1.5 million savings through transport to alternate destinations</li></ul>
Reduce inpatient length of stay	0	--	--

# Conclusions and implications for rural-serving CP programs

Can programs meet the Triple Aim?	<ul style="list-style-type: none"><li>▪ <b><i>High patient satisfaction</i></b></li><li>▪ Potential to shift costs from more to less expensive settings</li><li>▪ Appropriate care where vulnerable patients live has potential to improve health.</li></ul>
Impact on the workforce? (Quadruple Aim)	<ul style="list-style-type: none"><li>▪ More study needed. (Note: some programs use volunteers.)</li></ul>
Integration or competition?	<ul style="list-style-type: none"><li>▪ Many programs were well integrated into health and human services systems.</li></ul>
Does CP work?	<ul style="list-style-type: none"><li>▪ We need more evidence to show that CP is safe, effective, and economical.</li></ul>
Is CP sustainable?	<ul style="list-style-type: none"><li>▪ CP programs (many self-funded) need evidence to demonstrate value and improve long-term sustainability.</li></ul>



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