

When to Stop

Pearls for Geriatric Prevention

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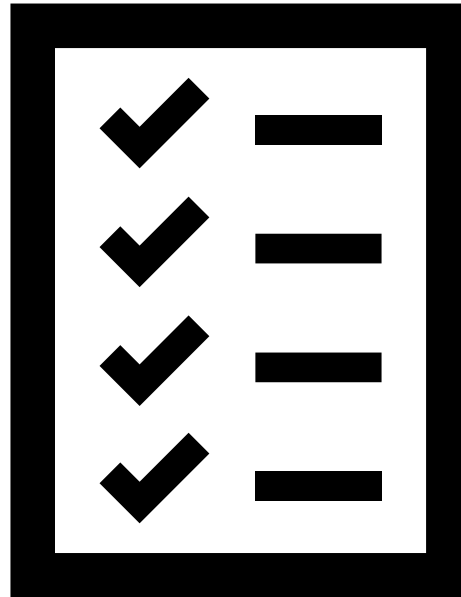


Objectives

- Review guidelines and recent literature on cancer screening in older adults
- Discuss key points regarding preventive medication use in older adults



I. Cancer Screening



(A Few) Guidelines

	USPSTF (1)	ACS (2)	Choosing Wisely (3)
Breast	Age 74	“as long as a woman is in good health and is expected to live at least 10 more years”	<p>“Don’t recommend screening for breast, colorectal, prostate or lung cancer without considering life expectancy and the risks of testing, overdiagnosis and overtreatment.”</p> <p>“Don’t recommend screening for breast, colorectal or prostate cancer if life expectancy is estimated to be less than 10 years.”</p>
Colorectal	Age 75 76-85 “selectively offer”	Age 75 76-85 “should talk with their health care provider”	
Lung 20 pack years, within 15 years	Age 80 Discontinue if another problem “significantly limits life expectancy or the ability or willingness to have curative lung surgery.”	Age 80 “are in fairly good health”	

1 - USPSTF A and B Recommendations

2 - American Cancer Society Guidelines for Early Detection

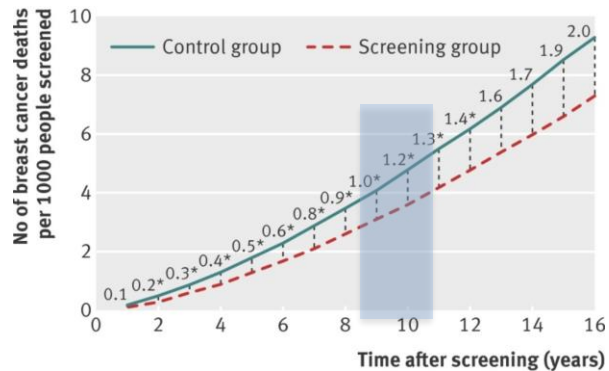
3 - Choosing Wisely, AGS and AMDA

Breast Cancer

For patients older than 40,
10.7 years to prevent one
death in 100 patients

Lee et al., 2013

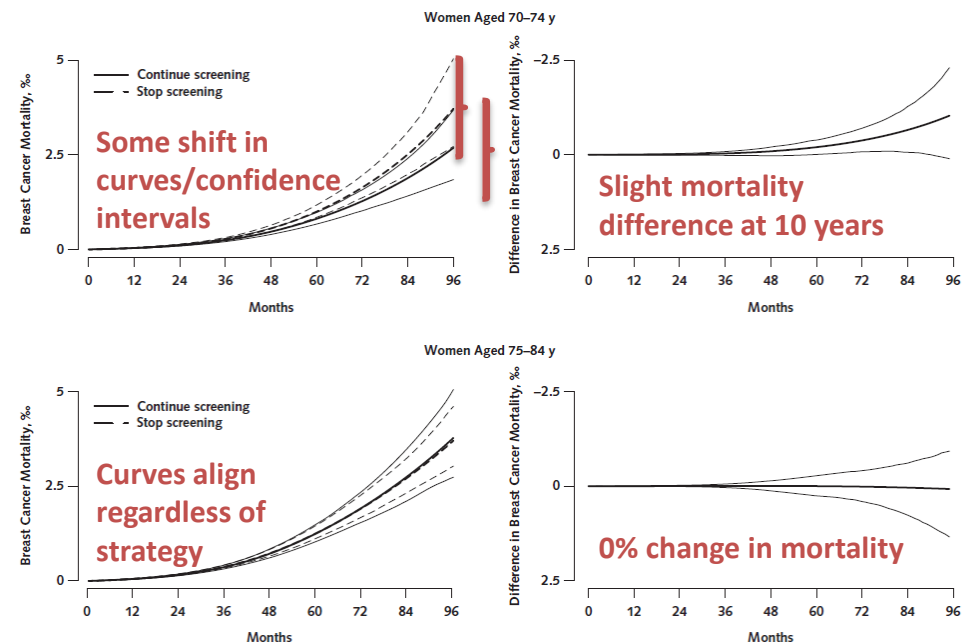
(RCT meta-analysis, multiple countries)



After 8 years:

- 70-74: Prevented 1 death/1000 pts
- 75-80: Prevented 0.07 death/1000 pts

Figure 2. Standardized cumulative incidence curves for breast cancer mortality, by screening strategy and age group.



Thinner lines represent 95% CIs. The 2 curves in the 75- to 84-y age group are indistinguishable from each other.

Garcia-Albeniz et al., 2020

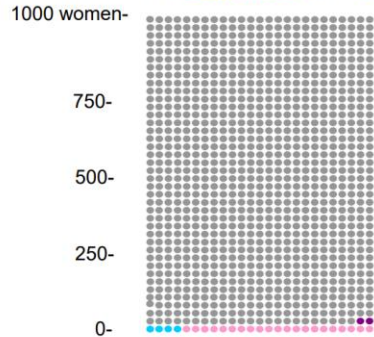
(Medicare data, observational)



Breast Cancer Screening Past Age 75

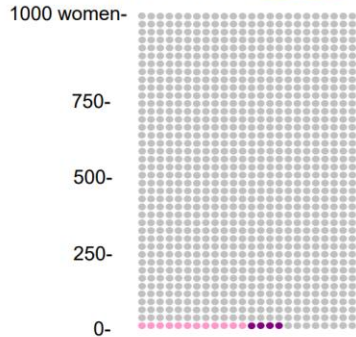
What else happens to 1,000 women age 75 to 84 who CONTINUE to or DO NOT have mammograms over 5 years?

Women your age who CONTINUE to have mammograms



- 4 are diagnosed with a pre-cancer
- 20 are diagnosed with a small breast cancer
- 2 are diagnosed with breast cancer that has spread outside the breast
- 974 are not diagnosed with breast cancer

Women your age who DO NOT have mammograms



- 0 are diagnosed with pre-cancer
- 12 are diagnosed with a small breast cancer
- 4 are diagnosed with breast cancer that has spread outside the breast
- 984 are not diagnosed with breast cancer

False Positive Risk

- 70-79yo: 7%
(biopsy: 1.8%)

Overdiagnosis risk:

- 74yo: 12-29%
- 80yo: 17-41%
- 90yo: 32-48%

Kotwal et al., 2020 (review)

10 years of life expectancy is a pretty good metric if you think a patient is REALLY healthy and they want to continue. Otherwise, there is a notable decline in benefit by mid-70s.



Colorectal Cancer

TABLE 3. Colorectal Screening in the Older Population With Screening Choices

Society	Recommendations for 76- to 85-y-old
USPSTF and the American Cancer Society	Recommend against routine screening for colorectal cancer in adults aged 76-85 y. There may be considerations that support colorectal cancer screening in an individual patient
American College of Gastroenterology	Age to stop is not specified
American Gastroenterology Association	Screening is potentially beneficial in persons up to the age of 86 y if there has not been previous screening, but should be considered in the context of comorbidities and life expectancy. Persons with previously negative screening test results, particularly negative screening colonoscopy results, could consider stopping at the age of 75 y
American Society of Gastrointestinal Endoscopy	Screening is potentially beneficial in persons up to the age of 86 y if there has not been previous screening, but should be considered in the context of comorbidities and life expectancy. Persons with previously negative screening test results, particularly negative screening colonoscopy results, could consider stopping at the age of 75 y
American College of Physicians	For those older than 75 y and individuals whose life expectancy is estimated to be <10 y, screening is not recommended
National Comprehensive Cancer Network	Screening should be an individual decision and can be discussed for individuals aged between 75 and 85 y
US Multi-Society Task Force on Colorectal Cancer	Screening should be considered for individuals without previous screening between the ages of 75 and 85 y

Nee et al., 2020



Colorectal Cancer

Risks of Screening

30-day complication rate

(Causada-Calo et al., 2020)

- Under 75: 2.6%
- Over 75: 6.8%

Overall rates of adverse events

(Day et al., 2011; meta-analysis)

- 65+: 2.6% GI; 1.9% CV/pulm
- 80+: 3.5% GI; 2.9% CV/pulm

Lag time to benefit

For polyp removal, approx. 10 years

(Zauber et al, 2012)

Screening Patterns

Per NHIS (Schonberg, 2015)

- 28% of those screened recently for CRC had been screened potentially inappropriately (at >75 or life expectancy <10y)
- 39% of eligible respondents were overdue for screening

EMR alerts associated with less deliberate decision making

(Schoenborn et al., 2020)



Colorectal Cancer

Much more nuanced because of procedural risks and potential to affect course of disease. Looking at automatic computer alerts won't do it!

10 years of life expectancy is still a relatively good benchmark.

Consider past screening history (if negative, less benefit from another)

If they're too frail to get a colonoscopy, they probably won't do well with surgery or chemo.



Lung Cancer

National Lung Cancer Screening Trial, 2011:

“a relative reduction in mortality from lung cancer with low-dose CT screening of 20.0%”

(vs CXR, 3 annual rounds of screening, followed for 6 years)

Age at randomization		
<55 yr†	2 (<0.1)	4 (<0.1)
55–59 yr	11,440 (42.8)	11,420 (42.7)
60–64 yr	8,170 (30.6)	8,198 (30.7)
65–69 yr	4,756 (17.8)	4,762 (17.8)
70–74 yr	2,353 (8.8)	2,345 (8.8)
≥75 yr†	1 (<0.1)	3 (<0.1)

Other pieces to consider

(Woolf et al., 2014; Pinsky et al., 2014; Patz et al., 2014)

In 65+...

- NNS to prevent 1 death = 245
- 27.7% of negative pts = false positives, and 3-4% of those had invasive procedure

18% of true positives = overdiagnosis (i.e., would not have been clinically significant in next 5 years)

Trial only included participants who could tolerate surgery – only 40% had COPD, heart disease, diabetes, OR stroke

Best evidence is for your relatively healthy patient who happened to be a heavy smoker, NOT for the average COPD'er.



So if you're going to remember 3 things...

Age 75

Life expectancy 10 years

There's a reason why those
are the recommendations!

But look at the big picture, too.

**The best evidence for lung cancer screening
comes from relatively healthy people.**



II. “Can I stop this?”



Lag Time to Benefit

Lag time to benefit	Intervention(s)
1–2 months	• SSRIs for depression
6 months	• Statins for secondary prevention of CVD • Finasteride for benign prostatic hyperplasia
1–2 years	• BP control for primary prevention of CVD
1–3 years	• Strict BP and lipid control in type 2 DM • Statins for primary prevention of CVD
2–5 years	• Statins for CV events
8–10 years	• Tight glycemic control for prevention of microvascular complications in type 2 DM
10 years	• Colon and breast cancer screening

Geriatrics Review Syllabus, 2019

Table 1. Time to Benefit for Preventive Interventions for Older Adults

Time to Benefit, Years	Preventive Intervention	Guideline
8–19 months	Bisphosphonates for osteoporosis	None
1–2	Primary prevention, hypertension	None
2–5	Primary prevention with statins	None
5	Surgical (vs transcatheter) aortic valve replacement for high risk aortic stenosis	None
6–8	Open (vs endovascular) repair for abdominal aortic aneurysm	None
10	Aspirin for cardiovascular disease and colorectal cancer prevention	USPSTF
10	Intensive glycemic control in diabetes mellitus	American Geriatrics Society
10	Colorectal cancer screening	USPSTF, American College of Physicians, Society of General Internal Medicine
10	Breast cancer screening	Society of General Internal Medicine, American College of Physicians
10–15	Prostate cancer screening	American Urological Association, American College of Physicians

USPSTF = U.S. Preventive Services Task Force.

Lee et al., 2018



Aspirin

PRIMARY prevention:

McNeil et al., 2018

Age 70+ (65+ for Black, Hispanic)

- Increased risk of major hemorrhage
- No benefit in incidence of CVD
- No impact on disability-free survival

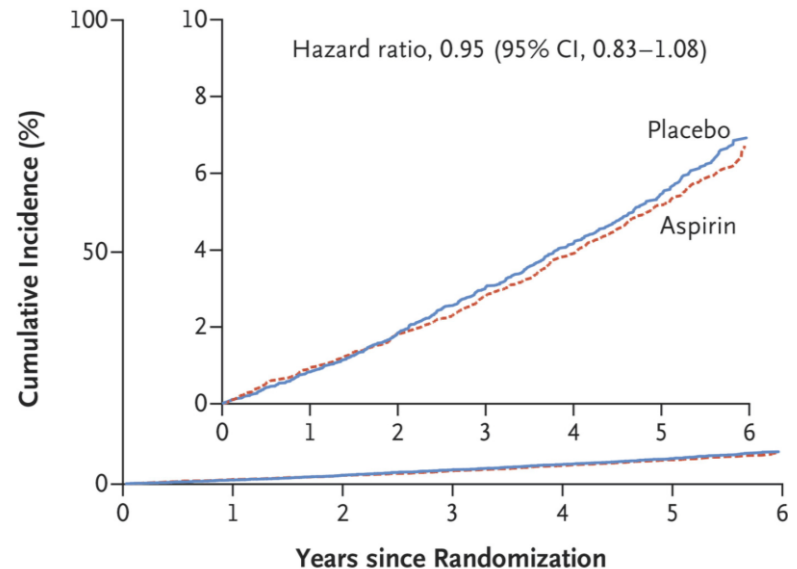


Table 3. Major Hemorrhagic Events.*

End Point	Overall (N = 19,114)		Aspirin (N = 9525)		Placebo (N = 9589)		Hazard Ratio (95% CI)	P Value
	no. of participants with event	rate per 1000 person-yr	no. of participants with event	rate per 1000 person-yr	no. of participants with event	rate per 1000 person-yr		
Major hemorrhage†	626	8.6	361	6.2	265	6.2	1.38 (1.18–1.62)	<0.001

Does NOT include patients with history of:

CAD (angina, MI, stent, CABG), CHF, CVA, TIA, >50% carotid stenosis, AAA



Anticoagulation

Heart Disease
526,509

Malignant
Neoplasms
431,102

Chronic Low.
Respiratory
Disease
135,560

Cerebrovascular
127,244

Alzheimer's
Disease
120,658

CHA₂DS₂-VASc Score



Stroke and Falls—Clash of the Two Titans in Geriatrics

[Kit Mun Tan](#)^{1,2} and [Maw Pin Tan](#)^{1,2,*}

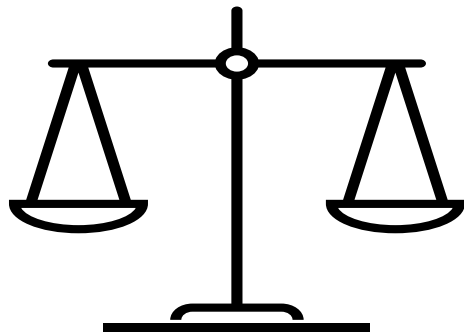


Risk-Benefit

**We probably overestimate impact of falls
(#1 reason not prescribed)**

“must fall approximately 300 times in 1 year
for warfarin to not be the optimal therapy”
(Man-Son-Hing et al., 1999)

No significant difference in rate of major
bleeding among high versus low fall risk
patients (8.0 vs 6.8% Donze et al., 2012)



But the risks are real.

ICH rates range from 0.4-1.3%/year
(Schafer et al., 2020, review)

Frail octogenarians, avg 32 months
- ANY bleeding events 17.1%
- Major bleeding events 3.4%
(Shinohara et al., 2019)

No increased risk of bleeding injury,
but increased mortality *with*
bleeding injury (Chiu et al., 2018)



Anticoagulation

Apixaban > Warfarin

(Amin et al., 2019; Halvorsen et al., 2014; Shah et al., 2019)

Lower risk of BOTH

- Stroke
- Major bleeding

In one model, apixaban's benefit > risk until age 92

Strokes in the elderly are not rare.

We likely overestimate impact of fall risk.

Use tools like CHADS2VASC and HASBLED to help you have a good risk: benefit discussion.

If you decide to anticoagulate and can use apixaban, pick that one.



Blood Pressure Management

“Yeah, people still fight a lot about that.”

Brief History of Geriatric BP Recommendations

SHEP Trial (1991)	Mean age 72. SBP 170s → 140s 1/3 reduction in stroke risk
HYVET Trial (Beckett et al., 2008)	Octogenarians. SBP 170s → 140s 20% RRR in all-cause mortality
JNC 8 Guidelines (James et al., 2013)	If no DM or CKD, 150/90 (Based on limited evidence for <140)
SPRINT (Williamson et al., 2016)	75+ year-olds SBP 140s → 120s 1/3 reduction in all-cause mortality and adverse CV events. NNT = 41



Does this apply?

SPRINT Exclusion:

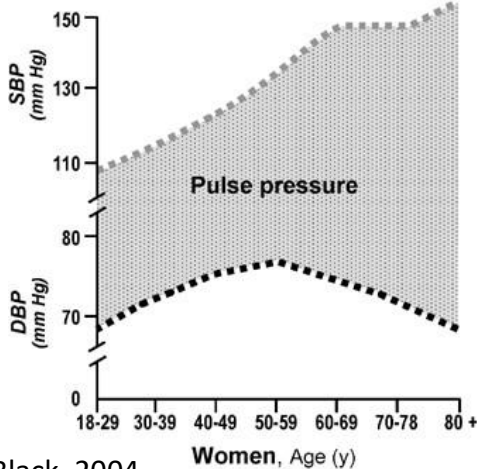
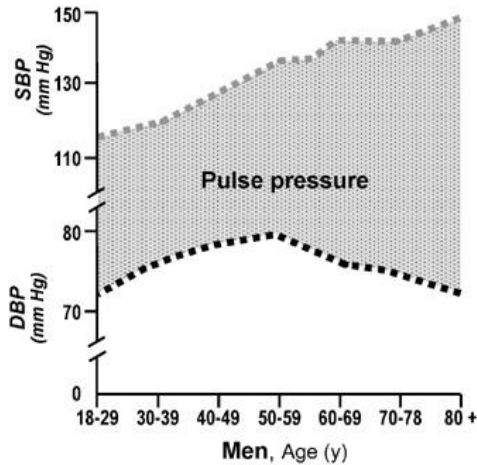
HTN hard to control (based on BP + # of meds), SBP <110 when standing, DM, CVA, CHF, nursing home, dementia

SPRINT Participants: ½ as many falls as average community dwelling elders

SPRINT Methods: multiple automated BP measurements in a quiet room



What does geriatric HTN look like?



Black, 2004

Pulse Pressure Widens with Age → Isolated Systolic HTN

Watch for Diastolic Hypotension

SPRINT: worse outcomes if DBP <55 (Khan et al., 2018)

- Recommend to maintain DBP >60 and watch closely for lightheadedness/ orthostatic changes



Other factors...

Frail Elderly

(Odden et al., 2012)

Walking speed (0.8m/s threshold) as a proxy for frailty. BP cutoff 140/90

- Fast: BP <140/90 = lower mortality
- Slow: No association
- Can't: BP >140/90 = lower mortality

SPRINT: intensive control had trend towards increased...

orthostatic hypotension, syncope, electrolyte abnormalities, acute kidney injury

Diabetes and Stroke

(Cushman et al, 2010; Benavente et al., 2013)

ACCORD (DM) and SPS3 (CVA)

- No benefit of more intensive BP control, though no subgroup analysis for elderly yet

VA Diabetes Trial

(Anderson et al., 2010)

- Benefit for SBP <140, but no increased benefit with more intensive control

**Don't relax BP control JUST because of numerical age.
Watch diastolic pressure and orthostatic symptoms.**



A1c Management

ACCORD (Gerstein et al., 2008; 2011)

A1c >8% reduced to 6.4 (vs 7.5) Mean age 62 years.

At 3.5 years, aggressive A1c lowering...

- Increased mortality, no reduction in CV events

At 5 years

- Increased mortality, reduction in nonfatal MI

ADVANCE (Patel et al., 2008)

Standard (7.3%) vs intensive (6.5%) control x5 years.

Mean age 66 years.

(*** Oldest mean age of any RCT cited by USPSTF)

- Reduced nephropathy and retinopathy
- No significant reduction in MI, CVA, or mortality
- Increased hypoglycemia in the intensive control group

Choosing Wisely:

Avoid using medications other than metformin to achieve A1c < 7.5% in most older adults; moderate control is generally better.

Comorbidity	Goal
Healthy, minimal	7.0-7.5%
Moderate	7.5-8.0%
Multimorbid	8.0-9.0%

See also Kirkman et al., 2012

For your average geriatric diabetic (i.e., one with a few comorbidities), an A1c from 7.5-8% is fine, and being more aggressive may cause harm.

BP control and statin use have shorter lag to benefit than glycemic control

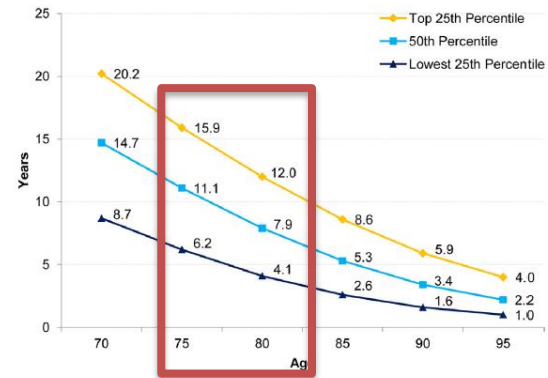


Brief Notes on Life Expectancy in Older Adults

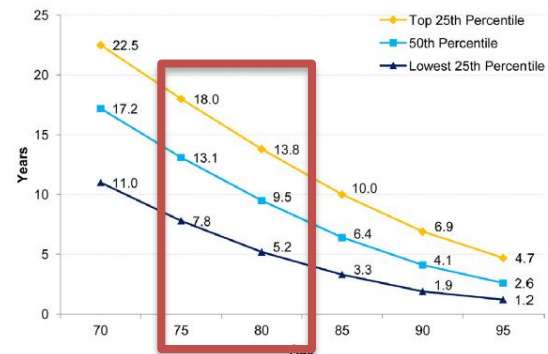
Age	Life Expectancy
65-70	19.5
70-75	15.8
75-80	12.8
80-85	9.2
85-90	6.6
90-95	4.5
95-100	3.1
100+	2.2

National Vital
Statistics System, Life
Tables, 2018

A



B



A: Men, B: Women
Kotwal et al., 2020



Individualizing Estimates

WHERE IS YOUR PATIENT?



WHAT TIME FRAME BEST FITS THE CLINICAL ISSUE?



Risk Calculator

1. How old is your patient?
2. What is the sex of your patient? Female Male
3. What is your patient's BMI?
4. Which best describes your patient's health in general?
5. Does your patient have chronic lung disease, such as emphysema or chronic bronchitis? Yes No
6. Has your patient ever had cancer (excluding minor skin cancers)? Yes No
7. Does your patient have congestive heart failure? Yes No
8. Does your patient have diabetes or high blood sugar? Yes No
9. Which best describes your patient's cigarette use?
10. Does your patient have difficulty walking 1/4 mile (several city blocks) without help from other people or special equipment? Yes No
11. During the past 12 months, how many times was your patient hospitalized overnight?
12. Because of a physical, mental or emotional problem, does your patient need the help of others in handling routine needs such as everyday household chores, doing necessary business, shopping, or getting around for other purposes? Yes No
13. Because of a health or memory problem, does your patient have difficulty managing money - such as paying bills and keeping track of expenses? Yes No
14. Because of a health or memory problem, does your patient have difficulty with bathing or showering? Yes No
15. Because of a health problem, does your patient have difficulty pushing or pulling large objects like a living room chair? Yes No

Total Lee Index Points: 0
Total Schonberg Index Points: 0

Summary

- Keep life expectancy, lag time to benefit, and goals of care in mind when discussing screening and treatment options
- Think harder about risks and benefits starting around age 75, and use available tools to help evaluate these
- Watch for new side effects of long-term medications
- Look for opportunities to deprescribe



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Questions?



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