

NSPS Level 2 Cost Estimates

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Purpose

The purpose of the NSPS Level 2 Cost Estimates presentation is to create a baseline for the costs of readiness for a facility to meet the NSPS Level 2 minimum capabilities. This does not include the costs of activation or costs that are already covered elsewhere in a facility's budget.

Intended Use

The cost estimates in this presentation are intended to serve as a budget reference and resource for facilities interested in serving as a Level 2 facility in the NSPS. Each facility should also consider their unique costs associated with meeting the Level 2 minimum capabilities.

This presentation includes:

- Cost categories associated with the NSPS Level 2 minimum capabilities
- Assumptions and estimated costs associated with a “theoretical” NSPS Level 2 facility

The cost estimates in this presentation are not intended to include all possible readiness costs for facilities, but rather serve as a baseline for facilities. To more accurately define the costs associated with each individual facility, consider downloading the [NSPS Level 2 Costing Template](#) and update the variables based on the needs of your individual facility to meet the NSPS minimum capabilities.

We would like to acknowledge and extend our deepest gratitude to all the team members that contributed to the successful development of the NSPS Cost Estimates, including:

- The Members of the NSPS Costing Task Force, which includes representatives from Level 1-4 NSPS facilities nation-wide. Without their dedication, expertise, and collaboration, the development and completion of this project would not have been possible.*
- The NSPS System of Care Work Group, NSPS Core Advisory Group, NETEC Principal Investigators, NETEC subject matter experts, and NSPS leadership for providing oversight and strategic direction to the work of the NSPS Costing Task Force.*

NSPS Funding Landscape



The number of facilities in the NSPS has fluctuated in response to funding, with more funding coming during an active emergency and substantially less to support ongoing readiness. The estimated cost of readiness for NSPS facilities is a resource that facilities can use to help define the funding needed to initially join the NSPS as well as funding needed to sustain programs annually to help maintain and grow the NSPS.

Current State

- Insufficient national capacity of Level 2 and Level 3 NSPS facilities
- Lack of clarity on the cost of readiness for Level 2 and Level 2 NSPS facilities
- Ambiguity into funding mechanisms for Level 2 and Level 3 NSPS facilities



Desired Future State

- Sufficient national capacity of Level 2 and Level 3 NSPS facilities
- Clarity on the cost of readiness for Level 2 and Level 2 NSPS facilities that can be leveraged for funding conversations
- Defined funding mechanisms for Level 2 and Level 3 NSPS facilities

The Tiered System of Care



There are costs associated with maintaining readiness at every level of the System of Care.

Level 1

Level 1 facilities, or Regional Emerging Special Pathogen Treatment Centers (RESPTCs), are regional resources hubs which provide highly specialized care. *Level 1s care for patients for their duration of illness.*

Level 2

Level 2 facilities, or Special Pathogen Treatment Centers (SPTCs), have the capacity to deliver specialized care to clusters of patients and serve as primary patient care delivery centers. *Level 2s can care for patients for their duration of illness.*

Level 3

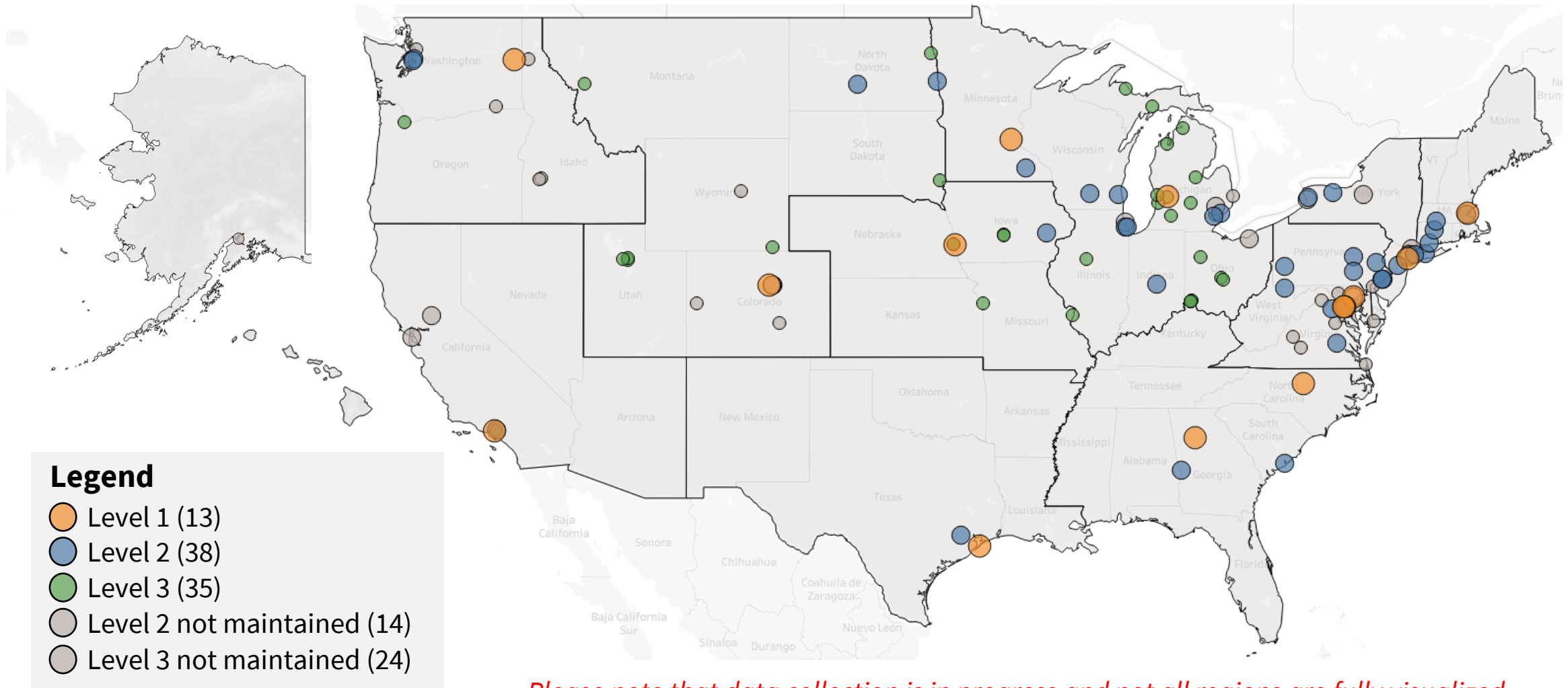
Level 3 facilities, or Assessment Centers, are widely accessible care delivery facilities, able to conduct limited basic laboratory testing, stabilize patients, and coordinate rapid patient transfer. *Level 3s can care for patients for 12-36 hours.*

Level 4

Level 4 facilities, or All Other Healthcare Facilities, can identify, isolate, inform, & initiate stabilizing medical care; protect staff; and arrange timely patient transport to minimize impact to normal facility operations.

Draft System of Care Current State Map

Only Level 1 facilities in the NSPS are regularly funded at the federal level, while Level 2 and Level 3 facilities are either unfunded or obtain funds through other programs. Because of the inconsistent national funding, there are gaps in the NSPS, and more consistent funding will be needed to sustain the system nationally.



Please note that data collection is in progress and not all regions are fully visualized

THE CHALLENGE...



Inconsistent funding

Funding fluctuates, with more coming during an active emergency and substantially less to support ongoing readiness



Insufficient national capacity

~62

National HCID beds (which heavily relies on unfunded Level 2s) for a VHF type pathogen*

13

Facilities that receive consistent federal funding

EFFORTS TO DEFINE A SOLUTION...

- Outlining the cost of readiness for Level 2 and Level 3 facilities to leverage
- Developing case studies on creative funding mechanisms (*ex. Region 10*)
- Highlighting nation-wide capacity gaps, garnering additional investment in preparedness
- Continue to hold strategic conversations with NSPS leadership

Whether facilities are funded or not, or prepared or not, patients will present during a special pathogen event.

FACILITY RETURN ON INVESTMENT

What are potential returns on investment for a facility when joining the NSPS?

- Readiness=Protection of the workforce and community
- Being part of a national network
- Building relationships with nearby facilities
- Access to education and training
- Better patient outcomes
- Serving the community; badge of honor
- Advancing continuity of care / patient volume for electives and continued revenue generation

THE COST OF NOT PREPARING

What are potential impacts (financial & other) for a facility not preparing for a special pathogen event?

- Risk to revenue generation because of disruptions to the continuity of care (especially elective procedures)
- Decrease staff safety (exposure) thus lost work days
- Loss of employee confidence & staff retention
- Loss of community confidence
- Long term health exposure sequelae
- Reputational risk

Level 2 Cost Estimates Executive Summary



Overall Approach

A **group of NSPS representatives** from Level 1-4 facilities convened into an **NSPS Costing Task Force**. This NSPS Costing Task Force – made up of 1 Level 4 facility member, 2 Level 3 facility members, 2 Level 2 facility members, and several NSPS leaders – met bi-weekly for 4 months to review the NSPS minimum capabilities and **identify costs associated with each capability**. The costs were grouped into 5 costing categories:

Costing Categories



TRAINING



PERSONNEL



SUPPLIES



**PHYSICAL
INFRASTRUCTURE**



CONTRACTS

Approach to Estimating Costs

After grouping the minimum capabilities in the above costing categories, the NSPS Costing Task Force members completed **costing templates** to provide **real facility data** for each costing category. These real facility costs, combined with **market research**, provided a baseline of costs for a Level 2 facility. The NSPS Costing Task Force then defined **assumptions** for the “average” Level 2 facility – such as wages, staff size, etc. – to **standardize the variables that would contribute to costs**. The costs are broken out into Year 1 costs – which reflect the start-up costs for a facility – and Year 2+ costs which reflect the recurring annual costs to maintain the capabilities at the facility. The final cost estimates and assumptions for the “theoretical” Level 2 facility were then reviewed and validated by external NETEC subject matter experts.

Overview

The NSPS Level 2 cost estimates provide a baseline for the costs of readiness for a facility to meet the NSPS Level 2 minimum capabilities.

- The cost estimates do not include the costs of activation, only the cost of readiness to meet the minimum capabilities
- The cost estimates do not include costs that are already covered elsewhere in a facility's budget

A Theoretical Level 2 Facility

The final cost estimates were developed around a “theoretical” Level 2 facility that standardizes variables that contribute to costs and serve as a baseline for facilities to go up and down based on their unique needs to meet the minimum capabilities.

Total Investment

The following cost estimates for a Level 2 facilities were developed through a series of assumptions, but actual costs will vary by facility.

\$303,000

YEAR 1 COSTS

\$110,000

YEAR 2+ RECURRING COSTS

Cost Categories

Costs associated with the NSPS minimum capabilities were grouped into the 5 categories listed below:



Training



Physical Infrastructure



Personnel



Contracts



Supplies



A “Theoretical” Level 2 Facility

The cost estimates in this presentation are built around a “theoretical” Level 2 NSPS facility to control for and standardize the variables – such as wages, staff size, etc. - that would contribute to a facility’s estimated costs. The “theoretical” Level 2 NSPS facility costs should serve as a baseline for facilities to go up and down based on their unique needs to meet the Level 2 minimum capabilities.

General Assumptions

- The costs only include net-new costs to an existing facility
- The cost only include the cost of facility readiness (not the cost of activation)
- The costs only include the costs to meet the NSPS minimum capabilities and do not account for additional indirect costs
- The costs account for specific responsibilities for special pathogen care readiness and work within the existing facility’s staffing model

Theoretical Level 2 Facility Description



This “theoretical” Level 2 NSPS facility standardizes variables that would contribute to a facility’s estimated costs and serves as a baseline for facilities to go up and down based on their unique needs to meet the Level 2 minimum capabilities.



LOCATION

This facility is in a medium cost-of-living area in the US, and its staff are paid at the **median national hourly rate** for their roles.



STAFF SIZE

This medium-size facility has a **sufficiently staffed team** with over 40 staff (e.g., clinicians, nurses, EVS, lab, etc.) that supports their special pathogen program.

The program has **team leader** who uses 0.2 of their FTE hour to lead the program with **one support staff** who uses 0.1 of their FTE hours to supporting the program development and training.



SUPPLIES & INFRASTRUCTURE

Before becoming a Level 2 facility, this facility needed to procure net-new **PPE to care for 1 stable PUI for 7 days.**

This facility did not have the lab instruments and consumables needed to meet the minimum capabilities, so this facility needed to **procure all equipment net new.**

This facility was already equipped with an isolation room so **did not need to make major physical renovations,** but the facility purchased low-cost communications technology, temporary walls/barriers, containment wrap, and an autoclave, among other supplies and equipment.

Theoretical Level 2 Facility Variables

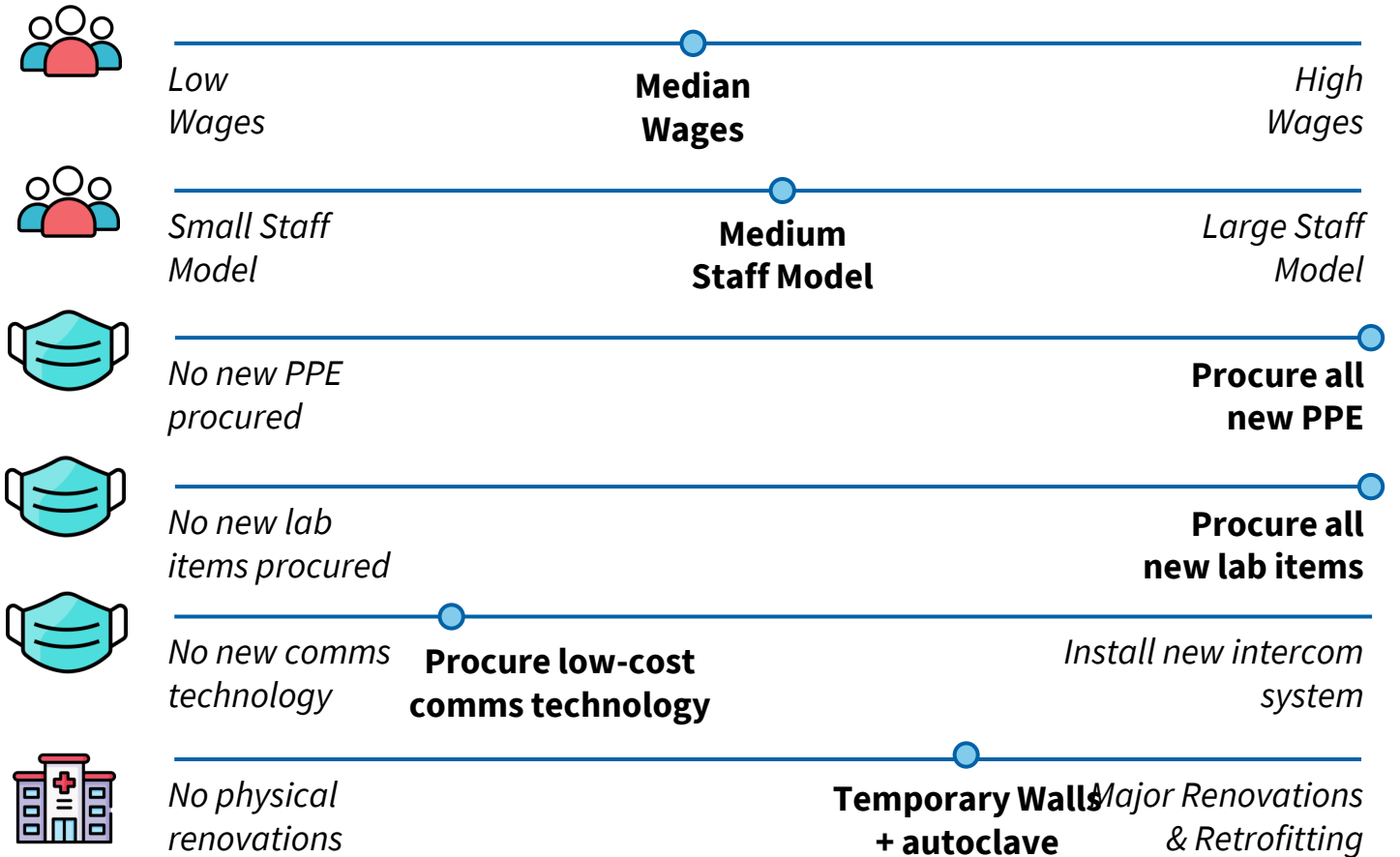


The theoretical Level 2 NSPS facility standardizes variables that would contribute to a facility's estimated costs and serves as a baseline for facilities to go up and down based on their unique needs to meet the Level 2 minimum capabilities



Facility Variables that Impact Cost

The NSPS Costing Task Force worked to make this this “theoretical” Level 2 NSPS facility as realistic as possible, so as seen below, the “theoretical” Level 2 facility has variables in the “low, med, high” categories.



Level 2 Cost Estimates



Costing Categories

The NSPS Level 2 Minimum capabilities are grouped into the 5 costing categories below. Each costing categories has been broken down to show the costs of the items that contribute to that category and the associated assumptions and variables impacting cost.



TRAINING



PERSONNEL



SUPPLIES



**PHYSICAL
INFRASTRUCTURE**



CONTRACTS



Training



Training Considerations



NSPS Capability

A Level 2 facility will need to conduct PPE training twice annually and skills training annually (estimated 20 hours total in Year 1, and 12 hours to retrain in subsequent years)

Theoretical Facility Characteristics

- **Staff:** The facility has a mix of staff that need to be trained annually on PPE (including clinicians, nurses, EVS staff, imaging staff, and lab staff). Not all staff will need to conduct but PPE and skills training.
- **Training Hours:** The training will take 20 hours in the first year and 12 hours to retrain in subsequent years
- **Wages:** The hourly rate for each staff members is the national median hourly rate for each role*
- **Other:** This facility also needs approximately \$500 every year for supplies.

Theoretical Facility Training Estimates

\$39,000

YEAR 1 COSTS

\$24,000

YEAR 2+ ANNUAL RECURRING COSTS

**see [costing template](#) for detailed staffing model and other assumptions to arrive at the estimated costs; National wage data from May 2023 [BLS National Occupational Employment and Wage Estimates](#)*



Cost Saving Tips

A facility can reduce costs by...

- Partnering with the Level 1 facility in the Region to conduct annual training
- Using expired PPE for PPE training
- Using free NETEC training modules

How much will this cost for my facility?

Consider the following variables:

- Higher or lower hourly rates
- Larger or smaller staffing models for training
- More or less staff experience

Adjust for these variables in the downloadable excel template [linked here](#)

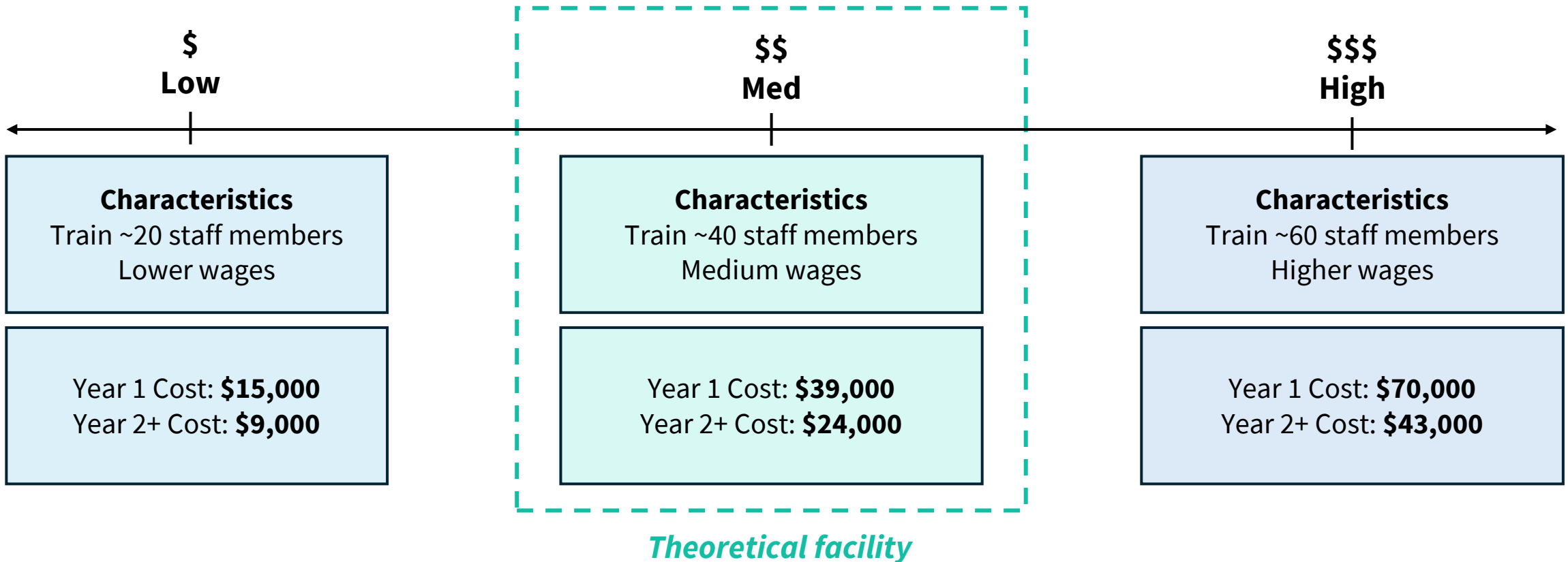


Training Cost Range



NSPS Capability

A Level 2 facility will need to conduct PPE training twice annually and skills training annually (estimated 20 hours total in Year 1 and 12 hours to retrain in subsequent years)





Personnel



Personnel Considerations



NSPS Capability

A Level 2 facility will need to conduct at least 2 exercises per year testing facility plans, collaborate with its Level 1 Facility(s) and relevant NSPS partners, and have oversight over the IPC program design, training, exercising, and clinical care protocols and capabilities.

Theoretical Facility Characteristics

- **Staff:** A team leader will provide 0.2 FTE to oversee and lead the program, while a support team member will provide 0.1 FTE to support the program. Hours are doubled for program stand-up in year 1.*
- **Exercises:** A mix of around 40 staff will participate in the 2 exercises per year to test facility plans. The facility assumes that the 2 exercises will take 8-hour total.
- **Wages:** The hourly rate is the national median hourly rate for each role*
- **Tab Technician Hours:** This facility assumes ~10 lab technicians will need a dedicated 25s hour annually to special pathogen program activities

! Important Note: Staff Hours for personnel costs will likely be “soft costs” for Level 2 facilities, meaning these responsibilities will be folded into existing roles and not result in an additional cost

Theoretical Facility Personnel Estimates

\$74,000

YEAR 1 COSTS

\$49,000

YEAR 2+ ANNUAL RECURRING COSTS

*see [costing template](#) for detailed staffing model and other assumptions to arrive at the estimated costs; National wage data from May 2023 [BLS National Occupational Employment and Wage Estimates](#)



Cost Saving Tips

A facility can reduce costs by...

- Folding IPC program responsibilities into exiting roles at the facility

How much will this cost for my facility?

Consider the following variables:

- Higher or lower hourly rates
- Larger or smaller staffing models for IPC program management

Adjust for these variables in the downloadable excel template [linked here](#)

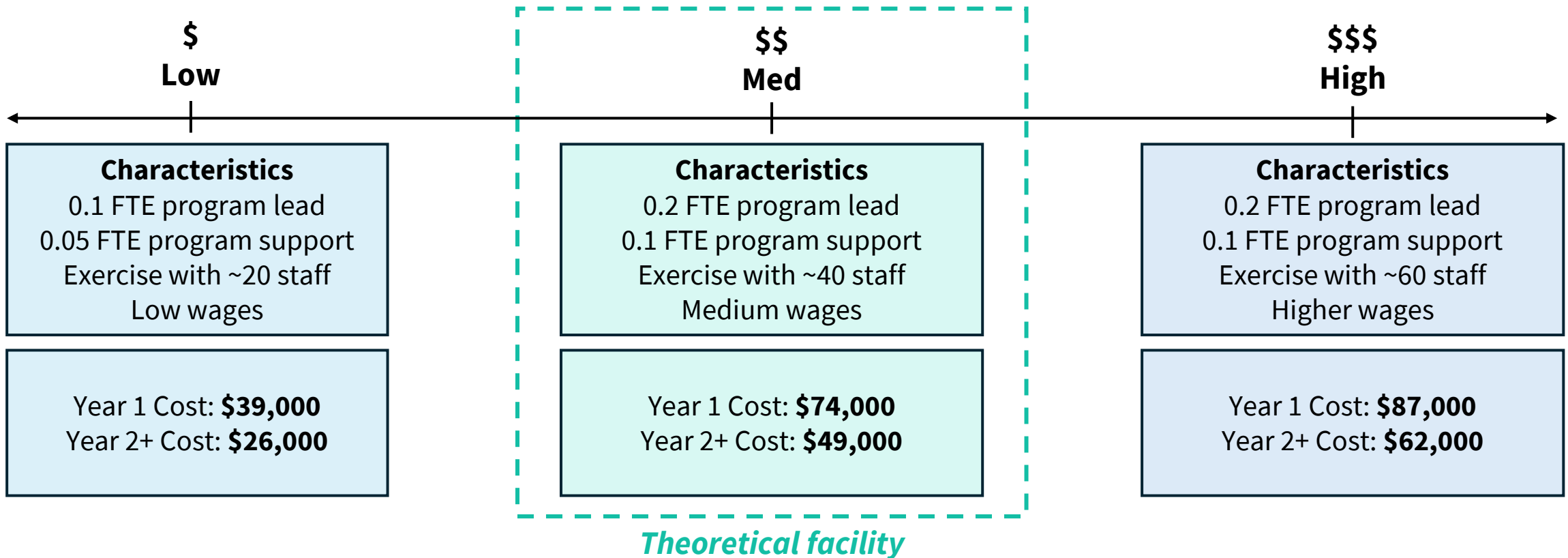


Personnel Cost Range*



NSPS Capability

A Level 2 facility will need to conduct at least 2 exercises per year testing facility plans, collaborate with its Level 1 Facility(s) and relevant NSPS partners, and have oversight over the IPC program design, training, exercising, and clinical care protocols and capabilities. *All models assume that double the hours are needed in year 1 to start-up the program.*



*Note: ~50% of personnel cost estimates are likely soft costs for Level 2's as responsibilities could be folded into existing roles



Supplies



PPE Supplies Considerations



NSPS Capability

A Level 2 facility will need sufficient appropriate PPE on hand to support evaluation & care of at least 1-2 HCID patients for at least 7 days available onsite with a plan for resupply to support 21 days of care

Theoretical Facility Characteristics

- **Patient Volume & Acuity:** This facility purchase enough PPE to care for 1 stable PUI for 7 days
- **Staff:** The staffing model assumes that 14 staff needing to be dressed in PPE in a 24-hour period (6 RNs, 2 Physicians, 2 Lab Technicians, 4 support roles)*
- **PPE Type:** This facility chooses to use PAPRs (rather than N95s) for patient care. They also choose to purchase 4 new PAPRs which can be decontaminated during use.
- **Expiration:** This facility assumes a 3-year expiration for all PPE

! Important Note: The following range accounts for a N95s/face-shield ensemble (low end) and a PAPR ensemble (high end). If 2 patients present simultaneously, the same staffing model would likely care for both patients. If 3 patients presented simultaneously, PPE costs would likely double.

Theoretical Facility PPE Estimates

N95 Ensemble		PAPR Ensemble	
\$3,000	\$1,000	\$17,000	\$6,000
YEAR 1 COSTS	YEAR 2+ COSTS	YEAR 1 COSTS	YEAR 2+ COSTS

*see [costing template](#) for detailed staffing model and other assumptions to arrive at the estimated costs



Cost Saving Tips

A facility can reduce costs by...

- Choosing to use N95s as the PPE ensemble
- Partnering with a nearby NSPS facility to supply PAPRs if needed
- Purchase supplies in bundles

How much will this cost for my facility?

Consider the following variables:

- Existing PPE
- Patient acuity (more severe illness will require more staff and therefore more PPE ensembles)
- PPE purchasing agreements
- PPE types (i.e., PPE vs. PAPR, which will depend on respiratory protection programs)

Adjust for these variables in the downloadable excel template [linked here](#)



Lab Supplies Considerations




NSPS Capability

A Level 2 facility can perform clinical laboratory testing to support critical care (e.g., BMP, CBC, ABG, LFTs, malaria, blood cultures, coagulation testing)

Theoretical Facility Characteristics

We assumed that a facility without any lab supplies would need to purchase...

- **iSTAT** instruments & consumables
- **CBC** instruments & consumables
- **Piccolo** instruments & consumables
- **Malaria Kits** for point of care testing (i.e. Binax or other)
- **Biosafety Cabinet**
- **Coagulation Testing & Blood cultures** supplies & equipment
- **Annual maintenance** for all lab equipment

 **Important Note:** Your facility may have some of these supplies already, so your facility costs could be lower than the estimated cost of purchasing all net-new supplies.

Theoretical Facility Lab Estimates

\$65,000

COST TO PURCHASE ALL LAB SUPPLIES

\$23,000

ANNUAL COST TO MAINTAIN ALL EQUIPMENT

*see [costing template](#) for other assumptions to arrive at the estimated costs



Cost Saving Tips

A facility can reduce costs by...

- Partnering with Level 1 facility(s) to help develop lab program
- Using a glove box instead of a biosafety cabinet

How much will this cost for my facility?

Consider the following variables:

- Existing lab instruments and consumables

Adjust for these variables in the downloadable excel template [linked here](#)



Other Supplies Considerations



NSPS Capability

A Level 2 facility will need to have a safe way to communicate with staff when caring for the patient and will need to have decedent management plans.

Theoretical Facility Characteristics

For a “theoretical” Level 2 facility, we assumed that a facility without any lab supplies would need to purchase...

- **Communications Technology:** Low-cost solution such as radio headsets or walkie talkies to communicate with its staff
- **Bioseal** 1 roll per year to manage remains if needed
- **Containment Wrap** as an alternative to an isopod (~\$20k)
- **Disinfecting Products** or a contracted room cleaning service as an alternative to a Steramist surface unit (~\$110k)
- **Bluetooth Stethoscope** and other care technology as needed depending on PPE ensemble

Theoretical Facility Other Supplies Estimates

\$6,000

YEAR 1 COSTS

\$4,000

YEAR 2+ ANNUAL RECURRING COSTS

**see [costing template](#) for other assumptions to arrive at the estimated costs*



Cost Saving Tips

A facility can reduce costs by...

- Purchasing low-cost communications technology
- Purchasing alternatives to higher-cost items (e.g., containment wrap, disinfecting products, etc.)

How much will this cost for my facility?

Consider the following variables:

- Existing supplies and infrastructure

Adjust for these variables in the downloadable excel template [linked here](#)

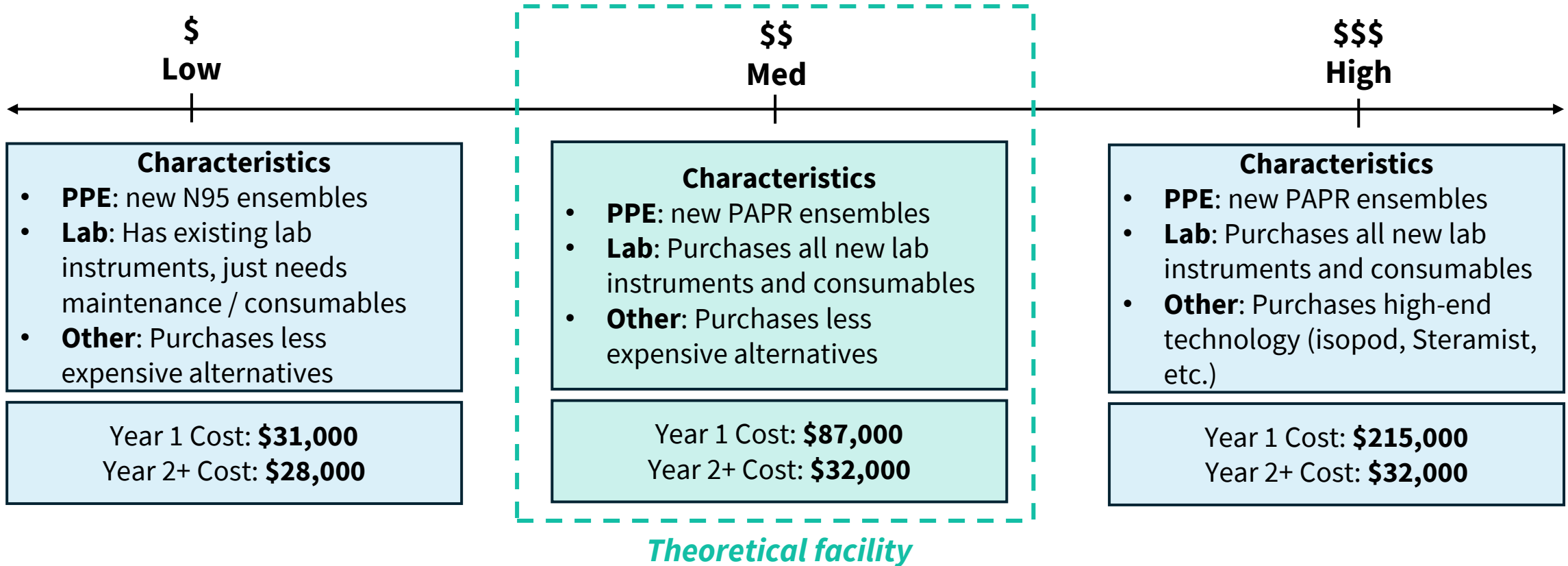


Supplies Cost Range*



NSPS Capability

A Level 2 facility will need to have sufficient appropriate PPE on hand to support evaluation & care of at least 1-2 HCID patients for at least 7 days available onsite, perform clinical laboratory testing to support critical care (e.g., BMP, CBC, ABG, LFTs, malaria, blood cultures, coagulation testing), need to have a safe way to communicate with staff, and will need to have decedent management plans. *All models assume the same staffing plan for PPE, supporting 1 stable PUI for 7 days.*



*Note: Supply costs are heavily influenced by existing supplies and purchasing agreements



Physical Infrastructure



NSPS Capability

A Level 2 facility will appropriate inpatient isolation space capable of supporting at least 1-2 HCID patients with critical illness and has a clear process to safely manage and dispose of all waste generated by patient care

Theoretical Facility Characteristics

- **Existing Infrastructure:** This facility has an existing airborne infection isolation room already accessible
- **Temporary Infrastructure:** This facility only needs to make minor, temporary modifications to the existing isolation space, such as temporary walls/barriers
- **Autoclave** installation and maintenance

Theoretical Facility Lab Estimates

\$103,000

YEAR 1 COSTS

\$5,000

YEAR 2+ ANNUAL RECURRING COSTS

**see [costing template](#) for other assumptions to arrive at the estimated costs*



Cost Saving Tips

A facility can reduce costs by...

- Making minor modifications to physical infrastructure rather than making major renovations

How much will this cost for my facility?

Consider the following variables:

- Major renovations/retrofitting a space vs. making minor modifications

Adjust for these variables in the downloadable excel template [linked here](#)

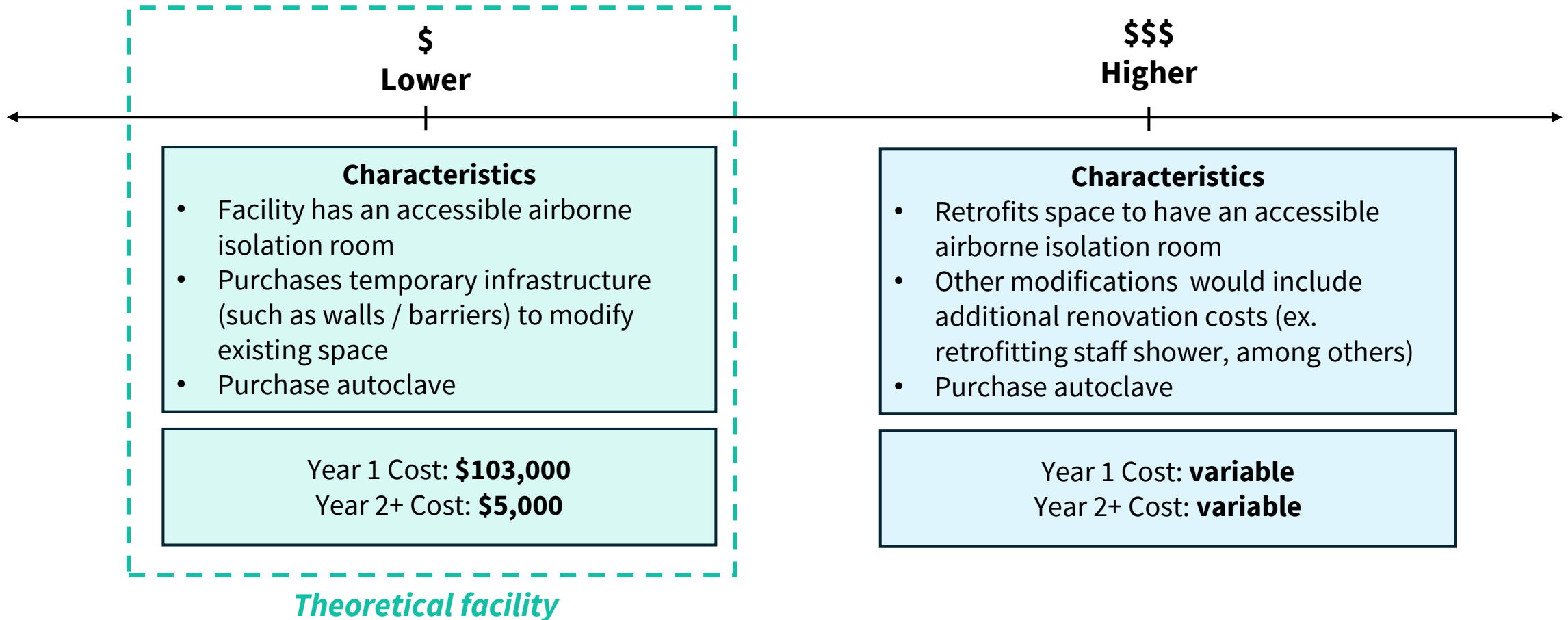


Physical Infrastructure Considerations



NSPS Capability

A Level 2 facility will appropriate inpatient isolation space capable of supporting at least 1-2 HCID patients with critical illness



**Note: Physical Infrastructure costs are heavily influenced by existing infrastructure*



Contracts



Contracts Considerations



NSPS Capability

A Level 2 facility will need a clear process to safely manage and dispose of all waste generated by patient care

Theoretical Facility Characteristics

We assume that the theoretical facility will purchase an autoclave, but a facility could also purchase a waste management contract.

Theoretical Facility Contracts Estimates

Given that waste management contracts are variable facility to facility, we have determined not to include an exact cost in the estimates.

Rather, we have included the waste management contracts as a section for facilities to consider on a case-by-case basis.



Cost Saving Tips

A facility can reduce costs by...

- Partner with a Level 1 facility that may have an autoclave



Contracts Cost Range

NSPS Capability

A Level 2 facility will need a clear processes to safely sequester waste in a secure location until a suspect case has been confirmed or ruled out, and if confirmed, proceed with waste plan.

(\$-\$\$\$)
Variable

Disclaimer

Given that waste management contracts are variable facility to facility, we have determined not to include an exact cost in the estimates.

Rather, we have included the waste management contracts as a section for facilities to consider on a case-by-case basis.

Theoretical facility

Level 2

Theoretical Estimates

Level 2 Cost Estimate Overview



The estimates for the “theoretical” Level 2 NSPS facility standardizes variables that would contribute to a facility’s estimated costs and serves as a baseline for facilities to go up and down based on their unique needs to meet the Level 2 minimum capabilities



TRAINING

- Hours to train staff annually on skills and twice annually on PPE
- Training supplies

\$39,000

year 1 cost

\$24,000

year 2+ recurring



SUPPLIES

- New PPE for 1 PUI for 7 days (PAPR)*
- New Lab Instruments & Consumables
- Other misc. supplies

\$87,000

year 1 cost

\$32,000

year 2+ recurring

**these PPE estimates assume the use of PAPRs. Estimates will be lower if the PPE ensemble is N95s*



CONTRACTS

- Waste management contracts
(cost excluded as it is variable based on contract agreements & autoclave)

variable

year 1 cost

variable

year 2+ recurring



PERSONNEL

- 0.2 FTE for IPC Program Lead*
- 0.1 FTE for IPC Program Support*
- 2 exercises annually
- Yearly hour for ~10 lab techs

\$74,000

year 1 cost

\$49,000

year 2+ recurring

**doubled hours in year 1. These estimates are soft costs since cost will likely be folded into an existing role*



PHYSICAL INFRASTRUCTURE

- Temporary walls / barriers
- Autoclave and maintenance

\$103,000

year 1 cost

\$5,000

year 2+ recurring



TOTAL ESTIMATE

Note that costs will vary by facility and these costs were developed with certain assumptions for variables

\$303,000

year 1 cost

\$110,000

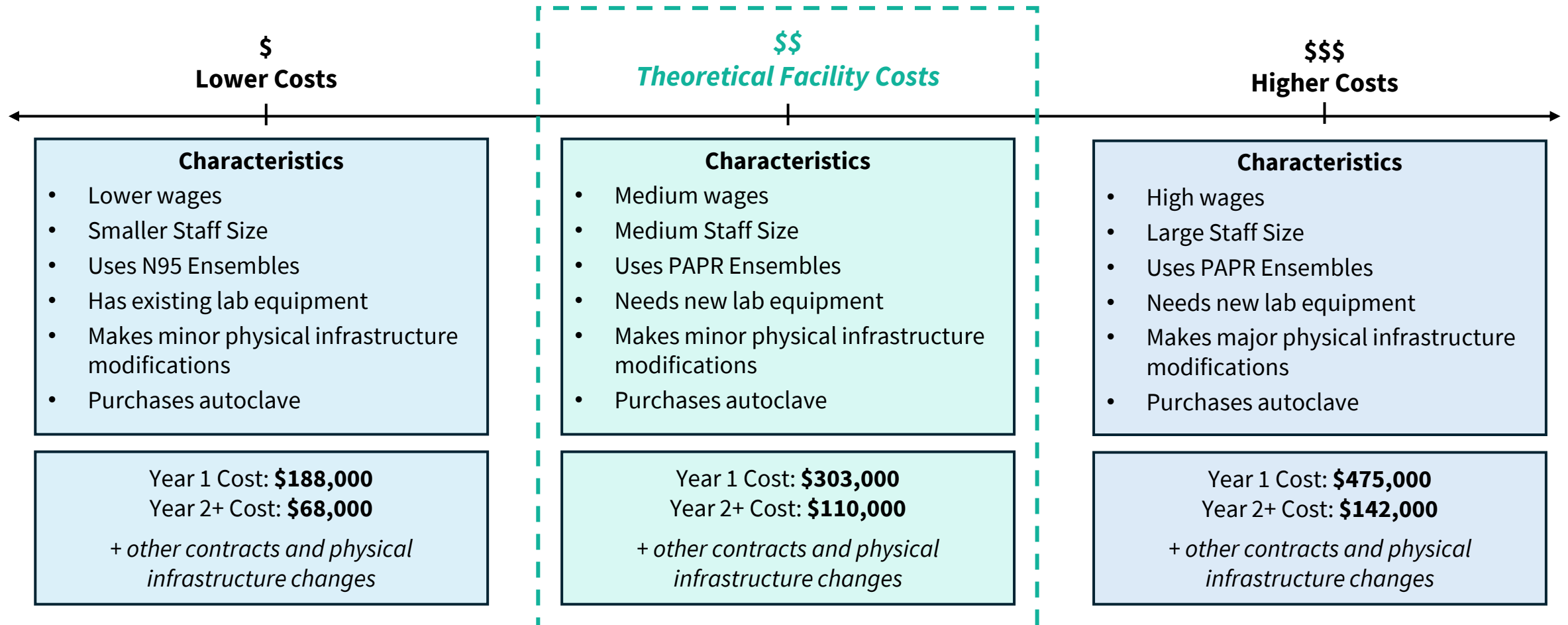
year 2+ recurring

+ physical infrastructure renovations & contracts

Level 2 Facility Range Estimates



Costs will vary facility to facility. The following cost ranges provide a starting point for each facility to identify where it sits based on the defined variables. The Theoretical Facility Costs are a combination of both lower and higher costs and reflect a likely estimate for the average facility.



Level 2 Cost Template



Level 2 Cost Template



This “theoretical” Level 2 NSPS facility used in this presentation standardized variables that would contribute to a facility’s estimated costs and serves as a baseline for facilities to go up and down based on their unique needs to meet the Level 2 minimum capabilities. To get a better estimate of your facility’s costs consider **downloading the NSPS Level 2 excel cost template and update the template with your facility’s the variables accordingly.**

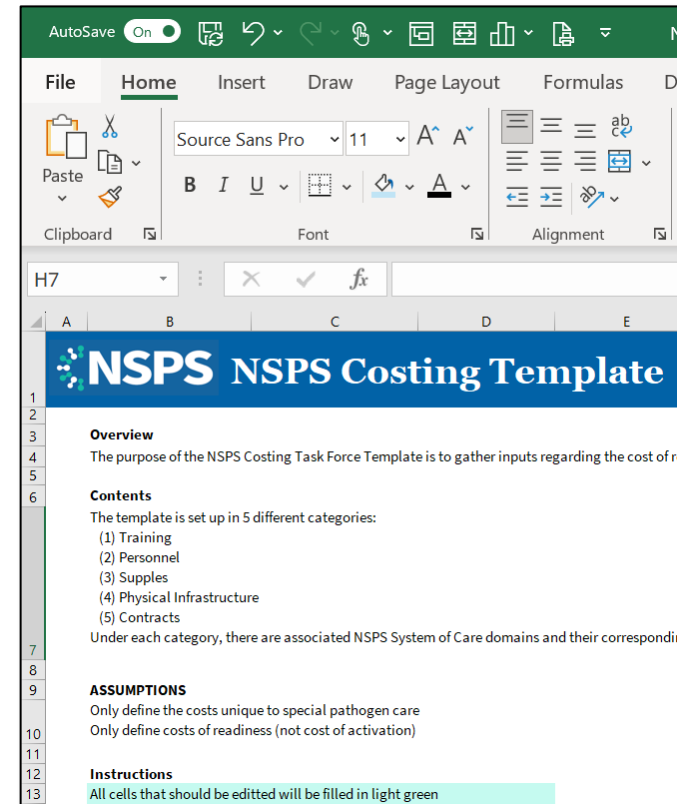


Instructions

1. Download the [NSPS Level 2 Budget Template](#)
2. The template currently reflects the “theoretical Level 2 facility.” Update the excel spreadsheet with variables that are reflective of your facility
3. If questions remain, please contact your RESPTC or NETEC

Please note that all costs are estimates and the actual costs of standing up a Level 2 program will vary facility to facility

Example Cost Template



Next Steps



Explore the NSPS Capabilities

Placeholder for resource
guide

Learn more about the NSPS minimum capabilities and support materials through resource guide [linked here \(coming soon\)](#).

Contact Your RESPTC



As the Regional leaders, the RESPTCs can help get you involved in the NSPS in your Region.

RESPTC contact information [found here](#).

Reach Out to NETEC



As the Coordinating Body of the NSPS, NETEC can help you get involved in the NSPS nationally.

Reach out to info@netec.org