

Beryllium Health-Related Research and Development Priority List

Rank (1 is highest)	Goal	Objective(s)	Gap Categories	Years S: <2 M: 2-5 L: >5	Topic No.
1	Develop and validate improved screening and diagnostic tests, including the identification of genetic factors that relate to risk	In looking for a better test, we would be looking at less invasive and more predictive tests	Disease Process, Diagnosis, and Treatment	M	5
2	Validate sampling method that characterizes fine particulate lung deposition via the development of a personal particle size-selective sampling method for beryllium, including the development of high volume personal pump	Validate sampling method that characterizes fine particulate lung deposition	Exposure Measurement Methods	M	1
3	Select technologies, further develop, validate, and deploy real-time monitoring methods, including aerosol and particle reference materials		Exposure Measurement Methods	M	10
4	Develop an animal model of human CBD		Disease Process, Diagnosis, and Treatment	M	15
5	Characterize and determine the health significance of the physico-chemical properties of beryllium aerosols in the workplace as they relate to risk		Workplace Risk Factors	M	9
6	Develop a method for quantifying skin, mucous membrane exposure and their role in disease progression	Evaluate surfaces and from evaluation, know risk of exposure, toxicokinetic	Exposure Measurement Methods	M	2
7	Develop leading edge engineering and administrative controls for maintenance / construction activities and operations that control particulate exposure	Minimize worker exposure risk; demonstrate technology efficiency or effectiveness; develop a case log of engineering controls and exposure data	Workplace Risk Factors	S	13
8	Develop an intermediate near real time monitoring instrument / method / analytical method		Exposure Measurement Methods	S	23
9	Determine the prevalence of sensitization and disease in general population	To identify forms of exposure (i.e. powerplants, smoking, by stander exposures, etc.)	Necessary Levels of Protection	M	12
10	Characterize operations and particle size distribution in terms of health risk		Workplace Risk Factors	M	18
11	Determine the relationship between surface contamination and health risk		Workplace Risk Factors	M	16
12	Develop standardized and validated sampling methods for general and porous surfaces, bulk samples, vacuuming, and other relevant media		Exposure Measurement Methods	S	19
13	Define natural history of disease process	Determine differences in disease progression, determine time frame of disease progression from initial exposure?	Disease Process, Diagnosis, and Treatment	L	4
14	Explore opportunities for therapeutic interventions (pre-CBD) or specific therapies for CBD	Prevent progression to disease	Disease Process, Diagnosis, and Treatment	L	7
15	Develop a coating technology to mitigate aerosol / particulate release	To determine a technology that is compatible with certified parts	Workplace Risk Factors	M	17
16	Develop a nationwide beryllium registry for all sensitized and CBD individuals		Necessary Levels of Protection	S	20
17	Study mechanism showing progression of sensitization to disease and different rates of progression		Disease Process, Diagnosis, and Treatment	L	22
18	Develop a nationwide tissue repository (library)	To have a library available so that all researchers have access for various research projects	Disease Process, Diagnosis, and Treatment	S	21
19	Determine sample location as it relates to risk	Can an area sample be related to personal samples for particle size limiting methods	Workplace Risk Factors	S	8
20	Study risks of exposure to naturally occurring and other potential forms of beryllium		Necessary Levels of Protection	M	11
21	Explore technologies for detecting beryllium in tissue	For use to develop a medical diagnostic technique	Disease Process, Diagnosis, and Treatment	M	6
22	Develop a method to determine the in-vivo fate of beryllium	Moving material from point of body contact to target organ (i.e., skin surface to lung understanding toxicokinetics)	Disease Process, Diagnosis, and Treatment	M	3
23	Determine if there could be other factors that could cause a synergistic effect or initiation point		Disease Process, Diagnosis, and Treatment	L	14