UW Medicine

肺移植

有关肺移植的资讯和期望

本讲义为患者提供了在华大医学肺移植项目做肺移植的相关内容。

华大医学的肺移植项目是西北太平洋地区唯一的肺移植项目。

前言

我们会给患者提供很多关于做 肺移植和整个移植过程的资讯。请仔细阅读这些资讯。与患者的家人和家护人员分享这些信息。

肺移植会在很多方面改变一个人的生活。患者在进行移植手术前必须考虑到所有相关的事项。

当了解这些资讯后，感到知所措是正常的。如有任何疑问，请写下来，可在门诊时提问。

什么是肺移植？

肺移植是终末期肺病患者的一种治疗方案。在移植手术中，外科医生会切除一个或两个患病的肺。再以器官捐赠者的肺所取代。

移植后的成功结果需要患者、其家人和家护人员以及整个华大医学肺部移植团队的全力投入。

移植的目标是什么？

肺移植的主要目标是提高生活质量和延长生命。肺移植后，**大多数**肺脏受赠者可以：

- 可以更好地呼吸，不需要依赖氧气管支持
- 可以比移植前更活跃
- 享受更好的生活质量

谁可以接受肺移植？

要成为肺移植的候选者，患者必须具备以下条件：

- 患有影响其日常生活的晚期肺部疾病
- 由于肺部疾病，预期寿命较低
- 尝试了所有其他治疗肺病的方法，但没有成功

所有的移植项目对移植候选人都有甄选标准，这些标准有助于我们了解患者是否最有可能从肺移植中获益。华大医学的肺移植项目所使用的标准都包含在本讲义中。

做肺移植包括那些事项？

筛选

患者在被列入肺移植手术等待名单之前，必须先做全面的健康检查。检查的目的是为了发现任何可能影响移植手术成功及患者术后恢复的问题。

团队的合作

移植过程有关的每个人都是一个团队里的合作成员。这个团队包括患者、家属和家护人员，以及整个华大医学肺移植团队。

承诺

成功的移植取决于患者在肺移植手术前、手术中和手术后对手术过程的承诺。这种承诺从第一次就诊开始，并持续到他们的余生。患者必须承诺：

- 按医嘱服药
- 监测他们的健康和新肺脏的情况
- 践行健康生活
- 信任肺移植团队的门诊及后续的医护服务

家属及家护人员

成功还需要患者家属及护理人员持续的支持。他们的承诺必须持续到患者的余生。

持续监测

移植手术后，及其终身我们都必须对接受移植者做严密的监测。这种终生跟踪是至关重要的，如此我们能够及早发现任何问题，以便立即开始检测及治疗。肺移植团队的所有成员都会共同努力，在移植手术前、手术中和手术后提供最好的护理。

被转介

若要考虑在华大医学进行肺移植，患者必须由本地的医疗服务提供者推荐。转介医生通常是一直治疗患者肺部疾病的肺科医生（肺专科医生）。肺移植团队重视患者的其他医生的意见，并把他们纳入身体检查和长期照顾的过程当中。

筛选过程

筛选过程经电话联系开始。我们会查看患者的医疗记录，询问他们的健康史。如我们没有发现任何可能影响肺移植手术效果的问题，我们就将安排第一次门诊。

第一次门诊

一位肺移植的专科医生会审查患者所有的健康资讯。然后，这位医生会与患者见面，了解肺移植是否为他们的最佳选择。医生会解释移植的过程，并谈论进行肺移植的风险及益处。

肺移植并不是每个患者正确或必然选择。如果肺移植对患者来说不是一个好的选择，医生会解释原因。我们也会与患者的转介医生讨论这个决定，并在可能的情况下建议其他治疗方案。

评估

如患者和肺移植医生决定肺移植可能是一个好的选择，下一步就是评估。在这个过程中，我们会做测试来评估患者的肺部疾病。我们还进行其他检测，以确保患者的心脏、骨骼、肾脏、肝脏或其他器官没有任何问题。

其中一些检测及化验室测试可以在患者当地的医疗机构完成。其他的则必须在华大医疗中心进行。在每项测试完成后，我们都会对结果进行审查，以确保患者仍有可能成为移植的候选者。

评估包括与肺移植团队的每个成员会谈。团队成员包括移植肺科医生、肺移植外科医生、社工、财务顾问和营养师。也可能还有其他医疗服务提供者的会谈。

评估及测试通常为门诊。患者不需要在医院过夜。我们将尽最大努力尽可能地把检查或会谈集中在一天内完成，以减少旅行时间。如患者无法在一天内完成许多检查或门诊，我们可以将它们分散在多天内完成。

大多数评估需要几周时间。对某些人来说，这个过程可能需要更长的时间。检测及门诊的结果将帮助我们决定肺移植是否对患者有益。

家护人员

潜在的移植患者必须提供至少两个家护人员的名字，家护人员在移植前、等待移植期间以及移植后的余生中担任患者的照顾者。这些照顾者必须是成年人，能够开车，不吸烟，并且能够在患者移植手术后住院恢复期间整天陪在医院。

我们**不**建议依赖雇用的照顾者。雇用的护工有下列的考量：

- 移植后大部分的医保不涵盖雇用护工
- 不可能提供每天 24 小时，每周 7 天的照顾
- 不能承诺终生的后续护理

患者及其家人或护理人员必须参加我们的肺移植教育课程。这也是移植准备工作的一部分。课堂上将详细讲解移植过程、等待名单、移植手术以及肺移植后的注意事项。

由甄选委员会决定肺移植受赠者

做完评估后，华大医学肺移植受赠者甄选委员会、会对所有的检测及门诊结果进行审核。该委员会由肺移植团队的所有成员组成，包括项目主任、外科主任、医疗主任、移植肺科医生、肺移植外科医生、肺移植护士协调员、社会工作者、营养师、财务顾问、药剂师，以及需要时也包括其他的医疗提供者。委员会还可能会听取患者的主治医生及其他顾问的意见。

在审核之后，委员会可以决定：

- 接受患者为肺移植候选者，并将其名字列入肺移植等待名单
- 不接受患者作为肺移植的候选者，如果有其他治疗方案，建议采用其他治疗方案。
- 要求更多的门诊及检测，以便作决定。

如委员会决定患者不适合在华大医疗中心进行肺移植，肺移植医生或肺移植协调员将与患者交谈，并解释他们做此决定的原因。患者可能希望联系其他移植中心，并要求进行评估。他们也可以要求我们将他们的医疗记录送交给其他移植中心。

如委员会需要更多的检查或测试才能做出决定，他们会在这些检查和测试完成后再次开会讨论结果。然后，他们将对患者是否附合条件列入华大医学肺移植等待名单而做出最终决定。

双肺或单肺移植

由肺移植甄选委员会决定患者最适合接受双肺（*双侧*）移植或是单肺移植。这个决定是基于许多因素，包括可能提供的器官。如患者患有某些类型的肺部疾病，双肺移植可能是唯一的选择。

确认医保福利

当患者被批准进入等待名单后，我们必须向他们的医保公司或指定的支付机构确认其医保福利。如有需要，肺移植项目会向支付方提交所有必要的资讯。我们要求得到一份医保公司最终的批准文件、即同意承担肺移植手术、所有后续护理及移植后所需药物的福利。

肺移植手术的财务

华大医学肺移植财务顾问会在评估期间联系患者及其家属或护理人员，了解医保资讯。在进行肺移植手术之前，患者应该询问他们的医保公司是否涵盖下列这些费用：

- 器官取获费用
- 移植手术及住院费用
- 终身用药费用（包括免疫抑制药物）
- 家庭式*静脉注射*（IV）治疗费用
- 康复费用(住院期及门诊物理、生活和语言治疗)
- 旅行或搬迁和住房费用

患者亦应向医保公司咨询各项支付福利的〞终身最高限额〞。

有时，患者发现他们的医保不涵盖肺移植的所有费用。如发生这种情况，而患者又无力支付医疗费用时，患者和他们的家人可能需要在排名等待移植期间、发动筹款。

前到西雅图地区及在西雅图地区的居留时间

由于移植手术是无法 "预先安排时间"的，所以患者可以在一周内的任何一天、任何时刻接到电话通知来做移植。当患者接到电话时，他们必须在 3 到 4 小时内到达华大医疗中心。

作为评估的一部分，肺移植受赠者甄选委员会也将审核患者自拟的计划：

- 接收到通知前来接受肺移植的电话后如何在 3 至 4 小时内到达华大医院
- 移植手术前后在西雅图区住宿的安排。

我们要确保没有任何问题会使患者不能及时赶到华大医疗中心，我们也要确保他们在移植手术后有一个住处。如患者：

- **不住在西雅图的车程内**：可能需要计划乘坐飞机，这样患者可以继续住在家里，并在接到 "电话 "通知后 3 至 4 小时内到达华大医疗中心。
- **不能在 3 到 4 小时内到达华大医疗中心，无论是地面还是航空**：在等待肺移植的过程中，患者必须搬到西雅图或在车程 3 到 4 小时内的地方。

移植后至少3个月内，患者及其家人或家护人员必须住在距离华大医疗中心行车1小时以内的地方。有些患者必须在西雅图地区居住6个月或更长的时间。

大多数的医保不支付非紧急旅行、家护人员费用或当地住房费用。住房不是由华大医学肺移植项目直接提供的，因此，如患者及其家人需要搬迁，必须拟订这些计划。肺移植社工作可提供有关旅行及住房选择的资讯。

列入等待名单

当肺移植甄选委员会接受患者为肺移植候选者，并得到其保险公司的最终批准后我们会联系患者，并将其列入肺移植的等待名单中。如患者需要搬到离西雅图较近的地方，我们会在他们搬到新家后将他们列入等候名单。

联合器官共享网络(UNOS)负责维护美国患者的等待名单。该名单是移植患者等待匹配合适的器官捐赠者的排名。大多数情况下，器官的分配是根据患者的病情及移植后的预期寿命来决定的。联合器官共享网络（UNOS）使用肺脏分配积分(LAS)来进行这一过程。要了解更多有关联合器官共享网络（UNOS）和肺脏分配积分的资讯，请上网 *www.unos.org* 查询。

等待移植期间

患者可能要等几天或几年才能等到合适的捐赠器官。最新的“移植受赠者科学数据注册库”（SRTR）报告包含在本资料袋中。该报告包括华大医学肺移植项目的肺移植等待时间的*中位数*。中位数是一系列数字中的中间值。中位数等待时间为6个月，意味着一半的患者等待时间少于6个月，一半的患者等待时间超过6个月。

在患者等待肺移植的期间:

- 他们的主治医生及肺专科医生必须继续管理他们的医疗问题和肺部疾病。
- 他们必须至少**每2到3个月**去看一次华大医学肺移植项目的肺科医生。在这些门诊，我们会审查他们的健康变化，并根据需要做新的检查或测试。我们也会根据需要安排社工、营养师及其他医疗服务提供者进行其他门诊。

从等待名单中除名

在等待移植的过程中，患者的病情可能会加重，出现新的健康问题，或出现一些其他问题。这些变化可能会影响肺移植是否仍是最佳治疗方案。如不是，患者可能会被从等待名单中除名。

如患者失去了医保、失去了家护者，或在其他方面不再符合我们接受肺移植的标准，也可能会从等待名单中除名。我们首先会与患者及其家人或家护人员讨论所出现的任何问题。如可能，我们会尽力帮助解决这些问题。

如患者被从等待名单中除名，不再是肺移植的候选者，肺移植团队和患者的其他医疗服务提供者将帮助他们探索其他治疗方案，或根据需要进行临终关怀和安适护理。

病人必须向我们提供电话号码，以便我们在任何时候都能联系到他们

捐赠者的肺脏

捐赠者的肺脏可能来自西雅图地区，也可能由手术小组驾车或飞到其他城市或州去获取。当找到潜在的捐献者后，肺移植团队会对捐献者的肺做全面评估，以确定它（们）是否适合移植。这个过程可能需要经过数小时或数天的测试及审查。

接到 ″电话″

如捐献的肺看起来是合适的，我们就会通知一个或多个潜在的受赠者到华大医疗中心来。如我们联系了一个以上的潜在受赠者，通常其中一位就是 ″候补 ″受赠者。如出于任何原因肺部不适用于第一位受赠者，即可提供给这一位後补受贈者。

为了提醒患者有可能的移植，我们会按患者在等候名单上提供的号码给他们打电话。这意味着患者**必须**：

- 如他们的电话号码有变化，要即刻告诉我们
- 立即接听所有来电或语音留言。

如患者在短时间内不接电话或不回复语音留言，我们可能会通知其他患者来华大医院做移植。

当患者到达华大医疗中心来做移植手术时，先会入住病房。当一切准备就绪，我们确认捐赠的肺适合使用时，我们就会把患者带到手术室。

最初看起来合适的捐赠肺、但也可能是不适合移植的。 有时，手术团队在取得肺脏时发现了这一点。这可能发生在通知等候的受赠者来到华大医疗中心之前，也可能发生在到达之后。

如捐献的肺不适合使用，移植手术就会被取消。被通知来做移植的患者就被送回家。我们把这称为 ″预习″。大多数患者在等待肺移植的过程中，至少有一次 ″预习″的经历。

移植后住院期间的护理

在医院里，医护人员组成的团队为肺移植受赠者提供护理。这些团队在受赠者康复期间继续照顾受赠者，并彼此讨论受增者康复的进度。本手册的第15页列出了华大医学肺移植团队医疗服务提供者的姓名。

- 患者在重症监护室(ICU)时、**心胸重症监护室(CT ICU)团队会**提供护理。
- 患者在胸外科病房时、由**胸腔外科团队**负责护理。
- **肺移植团队**在整个住院期间参与受赠者的护理。
- 护士、营养师、理疗师、生活技能理疗师、呼吸理疗师及药剂师也会为患者提供护理。
- 有些患者可能还需要看其他医疗服务提供者。这些医生可能包括*内分泌科*（糖尿病）、*肾脏科*（肾脏）、*胃肠科*（胃和肠）*和传染病方面的专家*。

在心胸重症监护室

一个基本的单肺移植手术大约需要4到6个小时。手术结束后，立刻将患者送进心胸重症监护室。护士、医生及呼吸理疗师会立即评估患者的状态。他们会根据需要开始治疗，并让患者在病房安顿好，这可能需要1至2小时。在此期间，我们会请家属或家护人员在心胸重症监护室外的等候区等候。

在心胸重症监护室里，患者需要使用*呼吸机*（协助呼吸的机器）。呼吸机通过放置在口腔里的呼吸管提供空气。需一直使用到患者可以自己呼吸为止。

有时，我们在手术后几个小时，当患者从麻醉（让病人睡着的药物）中恢复过来时，就可以拔掉呼吸管。大多数情况下，患者在手术后 24 至 48 小时就可以自行呼吸。如出现问题，他们可能需要使用呼吸机很多天甚至几周。

肺移植手术后，患者的手臂和颈部会有*导管*（软管），膀胱会有导尿管排尿，胸部会有引流管，以清除新肺脏周围的液体。他们也可能有一个为输送止痛药物而安置的神经*硬膜* 导管。当患者的病情好转时，我们会移除导管和引流管。

大多数患者会在心胸重症监护室里 3 至 5 天。如有任何情况，他们可能会在那里住更长的时间。

在胸腔外科病房

当患者可以自主呼吸且病情稳定时，就会转到胸腔外科病房。我们在这个单元的目标之一是为肺脏受赠者和他们的家人或家护人员做好回家的准备。肺脏受赠者可能会在这个单元留住几天到几周，这取决于他们恢复的情况。平均住院时间为 14 至 20 天。

肺移植后的护理包括许多患者每天必须服用几次的药物

有些肺脏受赠者在康复期间会出现一些问题。这些患者可能需要在医院住上几个月。

安全性

移植手术后，肺脏受赠者有较高的感染风险。为了保证安全，我们将要求:

- 要求访客戴上手套、口罩， 也许还要穿上隔离袍。
- 请所有患感冒或有感染症状的成人和儿童等到他们身体康复后再去看望患者。

准备回家

肺移植团队的所有成员都会帮助患者做好出院的准备。我们举办了许多有关家庭护理的教学课程。肺脏受赠者及他们的家属或家护人员必须参加所有这些培训。这意味着家属或家护人员必须在胸外科病房每天而且全天陪伴肺脏受赠者，直到出院。

在教学过程中，肺脏受赠者及其家人或护理人员要学习以下的培训项目：

- 正确地服用所有药物
- 检查体征（体重、血压、脉搏、体温）及肺功能（*肺活量测定器*）
- 了解可能出现的排斥或感染的迹象和症状。

当肺脏受赠者病情稳定，可以行走，完成所有教学环节后，就可以出院了。

移植后

移植药物

肺脏受赠者今后每天都必须服用许多药物。其中有些药物必须每天服用数次。有助于防止移植肺排斥的药物称为免疫抑制或免疫抑制剂。肺脏受赠还需要服用一些药物来预防移植后可能出现的感染及其他问题。

肺脏受赠者**必须**按照医嘱服用所有药物。如他们不这样做可能会对他们的肺部、其他器官造成严重损伤，甚至死亡。

移植药物的费用非常昂贵。华大医学的财务顾问会与患者密切合作，确保他们有足够的医保或其他资源来支付这些费用。

血液检测

移植者还必须经常做血液检测。这些测试可以检查他们体内的药物水平。这些测试还可以显示是否有其他问题。医生可能会根据这些测试结果调整药物剂量。

恢复期

在恢复的最初阶段，必须有两名家护人员提供护理。这是需要的，因为在移植后的头 3 个月里，必须有一名家属或家护人员**全天候**地与患者在一起。大多数肺脏受赠者需要他人帮助他们吃药、做饭、支付账单、做家务，如打扫卫生和洗衣服。有些患者可能还需要帮助护理手术伤口和个人护理，如洗澡、穿衣和上厕所等等。

肺脏受赠者何时能恢复到平时的活动水平，取决于他们的恢复情况。大多数肺脏受赠者在移植手术后 4 到 6 周就可以恢复良好的活动水平。介时，他们应该可以自己走路、洗澡和穿衣服。

肺脏受赠者必须在手术后至少 8 至 12 周内限制使用手臂，以便胸部能够愈合。他们可能还需要持续做物理治疗来帮助他们恢复体力。

后续门诊

肺脏受赠者需与华大医学肺移植团队做多次复诊。团队会密切观察他们是否有任何问题的迹象。肺脏受赠者的家人或家护人员必须：

- **提供所有复诊的交通服务。**肺脏受赠者在移植手术后几周内开车是不安全的。
- **与肺脏受赠者一起参加所有的复诊**，以便了解药物和其他治疗的调整。

移植后的排斥和感染

肺移植后，肺脏受赠者面临以下这些持续性的风险：

- 自身对新肺脏的排斥。
- 因免疫系统受到抑制而造成的感染。

免疫系统的工作是保护身体免受感染和疾病。它通过消灭可能构成威胁的病菌和其他物质来实现这一目的。对于一个健康的免疫系统来说，移植的器官是一个必须被拒绝的〞入侵者〞。

为了防止身体对新肺脏的排斥，肺脏受赠者必须服用抑制免疫系统的药物。今后患者必须一直服用这些药物。但是，当他们的免疫系统受到抑制时，肺脏受赠者很容易受到感染。

我们会教导肺脏受赠者、家人或家护人员了解常见的感染及排斥症状。尽早发现这些迹象并立即告诉肺移植团队是至关重要的。大多数情况下，肺脏受赠者如能尽快接受检查并开始治疗，效果会更好。

排斥

肺移植后可能发生不同类型的排斥反应。它们包括*急性排斥*、*抗体介导的排斥*和*慢性排斥*，也称为*慢性肺异体移植功能障碍*（CLAD）*或支气管炎泯灭综合征*（BOS）。

如我们担心肺脏受赠者对新肺产生排斥，我们可能会安排支气管镜检查，并作肺部活检、验血和其他测试。如肺脏受赠者有排斥反应，就会根据排斥的类型及其严重性接受治疗。

有时即使经过治疗，排斥反应也会恶化。排斥反应可能导致肺功能衰竭和死亡。

感染

肺移植后可能会发生许多类型的感染。这些感染可能包括：

- *细菌的*感染如肺炎、皮肤感染或身体其他部位的感染等
- *病毒的*感染，如呼吸道病毒（如感冒），可能会对移植肺造成损害
- 真菌或霉菌感染

我们将尽最大的努力治疗任何发生的感染。 有些感染无法治疗或对治疗没有反应。这可能导致肺功能衰竭和死亡。

移植后的其他问题

肺移植后还可能会出现很多其他问题。其中包括：

- *原发性移植功能障碍*。这是指移植手术后，肺部不能正常运作。如发生这种情况，恢复的速度可能会比较缓慢。肺脏受赠者也可能需要在医院住更长时间。如肺部不开始运作，肺脏受赠者可能会死亡。
- 手术切口可能无法完全愈合，也可能会裂开（*开裂*）或感染。切口问题的治疗方法包括抗感染的药物、更多的伤口敷料更换或手术。
- 可能出现气管（*支气管*）问题。这些问题包括气管*窄狭*（狭窄）或气管*开裂*（气管破裂）。如出现这些问题，肺脏受赠者可能需要做*支气管镜检查*（将带有摄像头的软管插入肺部的检查）或做手术来修复气管，*扩张*（扩大）气管或放置*支架*。

以后，还可能出现其他问题。其中许多问题可能与免疫抑制药物有关。这些药物的副作用包括：

- 肾脏问题，可能需要透析或肾脏移植。
- 消化问题
- 血液计数问题
- 神经损伤
- 高血压
- 体重增加
- 糖尿病

免疫抑制药物也会增加患癌症的风险。肺脏受赠者可能会患上癌症，如皮肤癌和一种称为*移植后淋巴增生症*（PTLD）的淋巴瘤。肺移植后的癌症可能是轻微的，但也可能非常严重或危及生命。患者可能需要做手术或化疗来治疗这些癌症。

长期复的后续门诊

肺移植手术后，肺脏受赠者必须定期与华大医学肺移植团队复诊。肺脏受赠者以后一直需要这些复诊。

如肺脏受赠者住在离西雅图较远的地方，我们会与他们当地的医生密切合作。但他们仍然必须定期到华大医学院肺移植团队看门诊。

在第一个恢复阶段之后：

- 如肺脏受赠者恢复良好，我们至少每4到6周做一次血液的测试。我们会为患者每年安排几次门诊。
- 如有问题出现，肺脏受赠者可能需要更频繁的检测或门诊。

长期结果

肺移植后，大多数肺脏受赠者表示他们的情况良好。大多数人认为他们的生活质量有所改善。有些人能够重返工作岗位。有些人则可以享受退休生活、旅游、与亲人和朋友共度时光。

我们的目标是让每一位接受肺脏移植者的生活质量得到改善。但这并不总能如愿。肺移植后出现问题的患者可能需要多次住院治疗。他们可能无法做正常的活动，可能感到呼吸困难，可能需要额外的氧气。极少数情况下，患者甚至会感觉比肺移植前更严重。

存活率

在接受肺移植的患者中，约有 85%-95%的患者（100 名患者中约有 85-95 名患者）在移植手术后 1 年内仍能生存。所有肺脏受赠者的中位生存期约为 5 年半。这意味着一半的肺移植受者活不到 5 年半，一半的肺移植受者活得比 5 年半更长。

华大医学肺移植项目的肺脏受赠者能达到或超过上述的这些预期的存活率。

所有移植项目的存活率数据均可在移植受赠者科学数据注册处（SRTR）网站上查询：www.srtr.org。该数据每 6 个月更新一次。最新的科学数据注册处报告请见附件。

承诺和坚持遵行

肺移植对每个人来说都是一件大事。患者的生活在很多方面都发生了改变。肺移植手术的成功需要患者、家属、家护人员以及整个华大医学肺移植团队的共同努力。

华大医学肺移植团队与我们的移植患者站在一起。我们致力于为患者及其家属和家护人员提供终身的支持、医疗护理和教学。

请参阅 ″华大医学肺移植团队 ″手册，以了解我们团队里的医疗服务提供者及工作人员的详细名单。

华大肺移植团队 （UW Medicine Lung Transplant Team)

Program Director/Primary Surgeon 项目主任/主任外科医生	Michael Mulligan, MD Medical
Director/Primary Physician 主任 /主任医生	Erika D. Lease, MD
Clinical Nurse Specialist 临床专科护士	Kim Hoffman, RN, MN
Pre-Transplant Nurse Coordinators 移植前护士联系人	Amy Baker, BSN, RN Taylor Christensen, BSN, RN
Post-Transplant Nurse Coordinators 移植后护士联系人	Katie Gordon, BSN, RN Joe Lock, RN Reggie Pope, RN Katie Ward, BSN, RN Kim Yeary, MN, RN
Lung Transplant Doctors 肺移植医生	William A. Altemeier, MD Siddhartha Kapnadak, MD Thomas Keller, MD Erika D. Lease, MD Ganesh Raghu, MD Kathleen Ramos, MD Mark Tonelli, MD
Lung Transplant Surgeons 肺移植外科医生	Kathleen Berfield, MD Aaron Cheng, MD Michael Mulligan, MD Douglas Wood, MD
Medical Assistant 医疗助理	Kumiko Kameda, CMA
Program Coordinator 项目协调人	Aaron Tran
Social Services 社工	Angela Wagner, MSW
Pharmacists 药剂师	Greg Gipson, PharmD Hillary Sobeck, PharmD Aekta Vasavada, PharmD
Respiratory Therapy 呼吸理疗师	Jeff Moniz, RRT
Financial Counseling 财务顾问	Alan Bang Diana Rodriguez
Nutrition Services 营养师	Karissa Culley, RD Andrea Lopriore, RD Cory Zenner

您有疑问吗?

我们很重视您的提问，您有疑问或顾虑时；请致电华大医学的肺脏移植组：

工作时间上午 8 点至下 4:30 : 请致电：206.598.5668.

下班后及周末假日: 请致电：206.598.6190 接通后，请传呼当值的肺科移植医生。

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UW Medicine

Lung Transplant

What to expect

This handout explains what is involved in having a lung transplant with the UW Medicine Lung Transplant Program.

The UW Medicine Lung Transplant Program is the only lung transplant program in the Pacific Northwest.

Getting Started

We will give you a lot of information about having a lung transplant and the entire transplant process. Please read this information very carefully. Share it with your family and caregivers.

Having a lung transplant changes a person's life in many ways. Patients must think about everything involved before going forward with the transplant process.

It is normal to feel overwhelmed with all you are learning. Write down any questions you have and bring them to your clinic visit.

What is a lung transplant?

A lung transplant is a treatment option for some people with end-stage lung disease. During the transplant surgery, the surgeon removes one or both diseased lungs. They are replaced with lungs from an organ donor.

A successful outcome after a transplant requires a full commitment from the patient, their family and caregivers, and the entire UW Medicine Lung Transplant Team.

What are the goals of transplant?

The main goals of a lung transplant are to improve quality of life and prolong life. After a lung transplant, **most** recipients can:

- Breathe better and do not need oxygen support
- Be more active than they were before the transplant
- Enjoy a better quality of life

Who can have a lung transplant?

To be a candidate for a lung transplant, a patient must have:

- End-stage lung disease that affects their activities of daily living
- A lower life expectancy because of their lung disease
- Tried all other treatments for their lung disease, without success

All transplant programs have criteria for choosing transplant candidates. These criteria help us know if a patient will most likely benefit from a lung transplant. The criteria used by UW Medicine's Lung Transplant Program are included with this handout.

What is involved in having a lung transplant?

Screening

Patients must first have a full health screening before they are placed on the waiting list for a lung transplant. The purpose of the screening is to find any problems that could affect the success of the transplant surgery and the patient's recovery afterward.

Teamwork

Everyone involved in the transplant process works together as a team. This team includes the patient, their family and caregivers, and the entire UW Medicine Lung Transplant Team.

Commitment

Success depends on the patient's commitment to the process before, during, and after the lung transplant surgery. This commitment begins with the first clinic visit and continues for the rest of their life. Patients must commit to:

- Taking their medicines as prescribed
- Monitoring their health and new lung(s)
- Practicing healthy living
- Being faithful about visits and follow-up with the Lung Transplant Team

Family and Caregivers

Success also requires the ongoing dedication of the patient's family and caregivers. Their commitment must last for the rest of the patient's life.

Ongoing Monitoring

The recipient must be closely monitored after the transplant surgery and for the rest of their life. This lifelong follow-up is vital. It allows us to find any problems early so that tests and treatments can be started right away. All members of the Lung Transplant Team work together to provide the best possible care before, during, and after the transplant surgery.

Being Referred

For a patient to be considered for a lung transplant at UW Medicine, their local healthcare provider must refer them. The referring doctor is usually the lung doctor (*pulmonologist*) who has been treating the patient's lung disease. The Lung Transplant Team values input from the patient's other providers. We will involve them in both the screening process and long-term care.

Screening Process

The screening process begins over the phone. We review the patient's medical records and ask about their health history. If we do not find any issues that may affect their ability to have a good outcome after a lung transplant, we will set up a first clinic visit.

First Clinic Visit

A doctor who is an expert in lung transplant will review all the patient's health information. This doctor then meets with the patient to find out if a lung transplant is their best option. The doctor will explain the transplant process and talk about the risks and benefits of having a lung transplant.

A lung transplant is not the right option for every patient. If a lung transplant is not a good option for a patient, the doctor will explain why. We will also talk with the patient's referring provider about the decision and suggest other treatment options, if possible.

Evaluation

If the patient and the lung transplant doctor decide that a lung transplant may be a good option, the next step is the evaluation. During this process, we set up tests to assess the patient's lung disease. We also do other studies to make sure the patient does not have any problems with their heart, bones, kidneys, liver, or other organs.

Some of these studies and lab tests can be done by the patient's local providers. Others must be done at University of Washington Medical Center (UWMC). As each study is done, we review the results to be sure that the patient is still a possible candidate for a transplant.

The evaluation includes visits with everyone on the Lung Transplant Team. Team members include the transplant pulmonologist, the lung transplant surgeon, social worker, financial counselor, and nutritionist. There may be visits with other providers as well.

Evaluation appointments and tests are usually done as outpatient visits. They do not require an overnight stay in the hospital. We do our best to group as many tests or visits as possible into one day to reduce travel time. If the patient cannot do many tests or visits in one day, we can spread them out over more days.

Most evaluations take a few weeks. The process may take longer for some people. The findings from the studies and visits will help us decide if the patient is likely to benefit from a lung transplant.

Caregivers

The potential recipient must name at least 2 people who will be their caregivers before the transplant, while they are on the waiting list, and for the rest of their life after transplant. These caregivers must be adults, be able to drive, be nonsmokers, and be able to stay all day at the hospital while the patient is recovering from the transplant surgery.

We do **not** advise depending on paid caregivers. Paid caregivers are:

- Not covered by most insurance after transplant
- Not available for care 24 hours a day, 7 days a week
- Not committed to the lifelong follow-up needed

As part of preparing for a transplant, the patient and their family or caregivers must attend our lung transplant education class. The class explains more about the transplant process, being on the waiting list, the transplant surgery, and what to expect after a lung transplant.

Decision by the Lung Transplant Recipient Selection Committee

After the evaluation is done, the UW Medicine Lung Transplant Recipient Selection Committee reviews the results from all the tests and clinic visits. This committee includes all members of the Lung Transplant Team, including the Program Director, Surgical Director, Medical Director, transplant pulmonologists, lung transplant surgeons, lung transplant nurse coordinators, social worker, nutritionist, financial counselor, pharmacist, and other providers as needed. The committee may also review input from the patient's primary providers and other consultants.

After their review, the committee may decide to:

- Accept the patient as a lung transplant candidate and put their name on the lung transplant waiting list
- Not accept the patient as a lung transplant candidate, and suggest other treatment options, if available
- Ask for more visits and tests before they make their decision

If the committee decides that the patient is not a candidate for a lung transplant at UW Medicine, the lung transplant doctor or lung transplant coordinator will talk with the patient and explain the reasons for their decision. The patient may wish to contact other transplant centers and ask to be evaluated. They can also request that we send their medical records to other centers.

If the committee needs more visits or tests to make their decision, they will meet again to talk about the results after those visits and tests are done. They will then make their final decision about the patient's candidacy for a lung transplant at UW Medicine.

Double-Lung or Single-Lung Transplant

The Lung Transplant Recipient Selection Committee decides if the patient is best suited to receive a double-lung (*bilateral*) transplant or a single-lung transplant. This decision is based on many factors, including the organs that are available. A double-lung transplant may be the only option if the patient has certain types of lung diseases.

Confirming Insurance Benefits

After the patient is approved for the waiting list, we must confirm their insurance benefits with their insurance company or designated payer. If needed, the Lung Transplant Program will submit all required information to the payer. We will ask for final approval of benefits for the lung transplant surgery, all follow-up care, and medicines needed after transplant.

Financing a Lung Transplant

The UW Medicine Lung Transplant financial counselor will contact the patient and their family or caregivers during the evaluation to go over insurance information. Before moving forward with a lung transplant, the patient should ask their insurance provider if they cover:

- Organ acquisition fee
- The transplant surgery and hospital stay
- Lifetime medicines (including immune-suppressing medicines)

- Home *intravenous* (IV) therapy
- Rehabilitation (inpatient and outpatient physical, occupational, and speech therapy)
- Travel or relocation and housing

The patient should also ask about "lifetime maximums" for any benefits that are paid.

Sometimes, a patient finds out that their insurance will not cover all the costs of a lung transplant. If this happens and the patient cannot afford to cover the costs, the patient and their family may need to do fundraising before being placed on the waiting list.

Traveling to and Staying in the Seattle Area

Since a transplant surgery cannot be "scheduled," a patient may be called any day of the week and any time of the day or night. When called, they must be able to arrive at UWMC within 3 to 4 hours.

As part of the evaluation, the Lung Transplant Recipient Selection Committee will review the patient's plans for:

- Getting to UWMC within 3 to 4 hours of being called for a lung transplant
- Housing in the Seattle area after the transplant

We want to make sure that there are no issues that might keep the patient from arriving at UWMC in time. We also want to be sure they have a place to live after the transplant surgery. If the patient:

- **Does not live within driving distance of Seattle**: They may need to plan for air travel. This will allow them to keep living at home and still arrive at UWMC within 3 to 4 hours of "the call."
- **Cannot travel to UWMC within 3 to 4 hours, either by ground or air**: They must move to Seattle or to a place within 3 to 4 hours' travel time while they wait for a lung transplant.

For **at least 3 months** after the transplant, the patient and their family or caregivers must live within 1 hour of UWMC. Some patients must stay in the Seattle area for 6 months or longer.

Most insurance providers do not pay for non-emergency travel, caregiver costs, or local housing. Housing is not directly provided by the UW Medicine Lung Transplant Program, so the patient and their family must make these plans if they need to relocate. The Lung Transplant social worker will provide information and resources about travel and housing options.

Waiting List

After the Lung Transplant Recipient Selection Committee accepts the patient as a lung transplant candidate and we receive final approval from their insurance provider, we contact the patient and place them on the waiting list for a lung transplant. If the patient needs to relocate to be closer to Seattle, we will place them on the waiting list after they have relocated.

The United Network for Organ Sharing (UNOS) maintains the waiting list for patients in the United States. The list matches patients waiting for a transplant with a compatible organ donor. Most times, organs are allocated based on how sick a patient is and how long they can expect to live after a transplant. UNOS uses the *Lung Allocation Score* (LAS) for this process. To learn more about UNOS and the Lung Allocation Score, visit *www.unos.org*.

Waiting for a Transplant

A patient may wait a few days or a few years before the right donor organ is found. The most recent Scientific Registry of Transplant Recipients (SRTR) report is included in this packet. This report includes the UW Medicine Lung Transplant Program's *median* waiting time for a lung transplant. The median is the middle number in a range of numbers. A median waiting time of 6 months means that half of the patients wait less than 6 months and half wait more than 6 months.

While the patient waits for a lung transplant:

- Their primary care provider and a pulmonologist must continue to manage their medical issues and lung disease.
- They must see a UW Medicine Lung Transplant Program pulmonologist at least **every 2 to 3 months**. At these visits, we review any changes in their health and update studies or tests as needed. We may also set up other visits with the social worker, dietician, and other providers as needed.

Being Removed from the Waiting List

While waiting for a transplant, a patient may become more ill, develop new health problems, or have other issues. These changes may affect whether a lung transplant is still the best treatment option. If it is not, the patient may be removed from the waiting list.

Patients may also be removed from the waiting list if they lose their insurance, lose their caregivers, or no longer meet our criteria for a lung transplant in some other way. We will talk with the patient and

The patient must provide us with phone numbers where they can be reached at any time of day or night.

their family or caregivers about any problems that arise. We will do our best to help resolve these problems, if possible.

If a patient is removed from the waiting list and is no longer a candidate for a lung transplant, the Lung Transplant Team and the patient's other providers will help them explore other treatment options, or end-of-life care and comfort measures as needed.

Donor Lung(s)

The donor lung(s) may come from the Seattle area or a surgical team may drive or fly to another city or state to get the lung(s). When a potential donor is found, the Lung Transplant Team does a full assessment of the donor lung(s) to see if they are suitable for transplant. This process can involve hours or days of tests and review.

Getting "the Call"

If the donor lung(s) seem to be suitable, we call one or more potential recipients to come to UWMC. If we call more than one potential recipient, usually one is a "back-up" recipient. A back-up is needed in case there are any reasons the lung(s) are not a good fit for the first recipient.

To alert the patient about the potential transplant, we call them by phone at the numbers they provided when they were placed on the waiting list. This means that the patient **must**:

- Tell us right away if their phone numbers change
- Answer all incoming calls or voice messages right away

If the patient does not answer the phone or reply to a voice mail within a short time, we may call another patient to come to UWMC for the transplant.

When the patient arrives at UWMC for the transplant, they are admitted to the hospital. When everything is ready and we confirm that the donor lung(s) are suitable for use, we take the patient to the operating room.

Donor lung(s) that appeared suitable at first may turn out to be not suitable for transplant. Sometimes, the surgical team finds this out when they arrive to get the lung(s). This may happen before or after a potential recipient is called to come to UWMC.

If the donor lung(s) turn out not to be suitable for use, the transplant surgery is canceled. The patient(s) who were called in for transplant are sent home. We call this a "dry run." Most patients have at least one "dry run" while waiting for a lung transplant.

Hospital Care After Transplant

In the hospital, teams of providers care for lung transplant recipients. These teams follow the recipient during recovery and talk with each other about the recipient's progress. The names of the providers on the UW Medicine Lung Transplant Team are listed on page 15 of this handout.

- The **Cardiothoracic Intensive Care Unit (CT ICU) Team** provides care while the patient is in the Intensive Care Unit (ICU).
- The **Thoracic Surgery Team** is in charge of the patient's care in the Thoracic Surgery Unit.
- The **Pulmonary Transplant Team** helps care for the recipient during the entire hospital stay.
- Nurses, nutritionists, physical therapists, occupational therapists, respiratory therapists, and pharmacists also care for the patient.
- Some patients may also need to see other providers. These may be specialists in *endocrinology* (diabetes), *nephrology* (kidney), *gastrointestinal* (stomach and intestines), and *infectious diseases*.

In the CT ICU

A basic single lung transplant surgery takes about 4 to 6 hours. Right after the surgery, the patient goes to the CT ICU. Nurses, doctors, and respiratory therapists assess the patient's status right away. They begin treatments as needed and get the patient settled into their room. This may take 1 to 2 hours. During this time, we ask family or caregivers to wait in the waiting area just outside the CT ICU.

In the CT ICU, the patient is on a *ventilator* (breathing machine). This machine provides air through a breathing tube in the mouth. It is used until the patient can breathe on their own.

Sometimes, we can remove the breathing tube a few hours after the surgery, as soon as the patient recovers from the *anesthesia* (sleeping medicine). Most times, the patient can breathe on their own about 24 to 48 hours after the surgery. If problems arise, they may need to use the ventilator for many days or even weeks.

After a lung transplant, the patient has *catheters* (tubes) in their arms and neck, a catheter to drain their bladder, and drains in their chest to remove any fluid from around the new lungs. They may also have an *epidural* catheter for pain medicine. As their condition improves, we remove the catheters and drains.

Most patients stay in the CT ICU for about 3 to 5 days. If there are any problems, they may stay there longer.

Care after a lung transplant includes many medicines that the patient must take several times a day.

In the Thoracic Surgery Unit

Once the patient can breathe on their own and their condition is stable, they move to the Thoracic Surgery Unit. One of our goals on this unit is to prepare the recipient and their family or caregivers for going home. A recipient may stay in this unit a few days to a few weeks, depending on their recovery. The average stay in the hospital is 14 to 20 days.

Some recipients have issues that arise during their recovery. These recipients may need to be in the hospital for several months.

Safety

After the transplant surgery, the recipient has a higher risk of getting infections. To keep the recipient safe, we:

- Ask visitors to wear gloves, a mask, and perhaps a gown
- Ask all adults and children with symptoms of a cold or an infection to wait until they are well to visit the patient.

Getting Ready to Go Home

All members of the Lung Transplant Team help the patient get ready to leave the hospital. We give many teaching sessions about care at home. The recipient and their family or caregivers must attend all of these teaching sessions. This means that the family or caregivers must be with the recipient on the Thoracic Surgery Unit all day, every day, until the recipient leaves the hospital.

In the teaching sessions, the recipient and their family or caregivers learn how to:

- Take all medicines correctly
- Check vital signs (weight, blood pressure, pulse rate, and temperature) and lung function (*spirometry*)
- Know the signs and symptoms of possible rejection or infection

The recipient is ready to leave the hospital when their condition is stable, they can walk, and they have completed all the teaching sessions.

After Transplant

Transplant Medicines

Every day for the rest of their life, the transplant recipient must take many medicines. Some of these must be taken several times a day. Medicines that help prevent rejection of the transplanted lung(s) are called *immunosuppression* or *immunosuppressive* medicines. The recipient also takes medicines to prevent infection and other problems that may occur after the transplant.

The transplant recipient **must** take all their medicines as prescribed. If they do not, it may cause severe damage to their lungs, damage to their other organs, or even death.

Transplant medicines can be very costly. UW Medicine's financial counselors work closely with the patient to make sure they have enough insurance coverage or other resources to cover these costs.

Blood Tests

The transplant recipient must also have blood tests often. These tests check the levels of the medicines in their body. The tests can also show if there are other problems. The doctor may adjust the medicine doses based on these test results.

Recovery

Two caregivers must be able to help during the first stages of recovery. This is needed because a family member or caregiver must stay with the patient **at all times** for at least the first 3 months after the transplant. Most recipients need help with taking their medicines, cooking meals, paying bills, and doing chores like cleaning and laundry. Some patients may also need help with taking care of the surgery wounds and with personal care like bathing, dressing, and using the toilet.

How soon a lung transplant recipient returns to their usual activities depends on how their recovery goes. Most recipients can resume a good level of activity 4 to 6 weeks after their transplant surgery. By then, they should be able to walk, bathe, and dress themselves.

Recipients must limit use of their arms for at least 8 to 12 weeks after surgery so that their chest can heal. They may also need ongoing physical therapy to help them regain their strength.

Follow-up Visits

The recipient has many follow-up clinic visits with the UW Medicine Lung Transplant Team. The team will watch them closely for any signs of problems. The recipient's family or caregivers must:

- **Provide transportation** to all follow-up visits. It is not safe for the recipient to drive for several weeks after the transplant surgery.
- **Come to all follow-up visits** with the recipient so they can learn about changes in the medicines and other treatments.

Rejection and Infection After Transplant

After a lung transplant, recipients face these ongoing risks:

- Rejection of the new lung(s)
- Infection due to the immune system being suppressed

The immune system's job is to protect the body against infection and illness. It does this by destroying germs and other substances that may be a threat. To a healthy immune system, a transplanted organ is an "invader" that must be rejected.

To keep their body from rejecting the new lung(s), the recipient must take medicines that suppress their immune system. They must take these medicines for the rest of their life. But, when their immune system is suppressed, the recipient can get infections more easily.

We teach recipients and their family or caregivers about common signs of infection and rejection. It is vital to notice these signs early and tell the Lung Transplant Team right away. Most times, the recipient has better results if they get checked and begin treatment quickly.

Rejection

Different types of rejection can happen after a lung transplant. They include acute rejection, antibody-mediated rejection, and chronic rejection, also known as *chronic lung allograft dysfunction* (CLAD) or *bronchiolitis obliterans syndrome* (BOS).

If we are concerned that the recipient may be rejecting their new lung(s), we may schedule a *bronchoscopy* with lung biopsies, blood tests, and other testing. If the recipient has rejection, they receive treatments based on the type of rejection and how severe it is.

Sometimes rejection can get worse, even with treatment. Rejection may result in lung failure and death.

Infections

Many types of infections can occur after a lung transplant. These can include:

- *Bacterial* infections such as pneumonia, skin infections, or infection of other parts of the body
- *Viral* infections such as respiratory viruses (like colds) that can cause damage to the transplanted lung(s)
- *Fungal* or mold infections

We will do our best to treat any infections that occur. Some infections cannot be treated or do not respond to treatment. This can result in lung failure and death.

Other Problems After Transplant

There are many other problems that can occur after a lung transplant. Some of these are:

- *Primary graft dysfunction* can occur. This is when the lung(s) do not work as they should right after the transplant surgery. If this happens, recovery may be slower. The recipient may need to stay in the hospital longer. The recipient may die if the lung(s) do not start to work.
- Surgical incisions may not heal fully. They also may come apart (*dehiscence*), or become infected. Treatments for incision problems include medicines to fight infection, more dressing changes to the wound, or surgery.
- Airway (*bronchial tube*) problems may occur, such as airway *stenosis* (narrowing) or *dehiscence* (airway falling apart). If these problems occur, the recipient may need a *bronchoscopy* (an exam where a tube with a camera is inserted into the lungs) or surgery to repair the airways, to *dilate* (widen) the airways, or to place a *stent*.

Over time, other problems may also occur. Many of these may be related to the immune-suppressing drugs. Side effects from these drugs include:

- Kidney problems that may require dialysis or a kidney transplant
- Digestive problems
- Blood count problems
- Nerve damage
- High blood pressure
- Weight gain
- Diabetes

Immunosuppressive medicines also increase the risk of getting cancer. Transplant recipients can develop cancers such as skin cancers and a type of lymphoma called *post-transplant lymphoproliferative disorder* (PTLD). Cancer after a lung transplant can be minor, but it could be very serious or life-threatening. Patients may need surgeries or chemotherapy to treat these cancers.

Long-term Follow-up

After a lung transplant, the recipient must have regular clinic visits with the UW Medicine Lung Transplant Team. These follow-up visits will be needed for the rest of the recipient's life.

If the recipient lives far away from Seattle, we work closely with their local doctors. But they still must come to UWMC for their regular clinic visits with the UW Medicine Lung Transplant Team.

After the first recovery phase:

- If the recipient is doing well, we do blood tests at least every 4 to 6 weeks. We will then see them for clinic visits several times a year.
- If there are problems, the recipient may need to have testing or clinic visits much more often.

Long-term Outcomes

After a lung transplant, most recipients report that they are doing well. Most feel that their quality of life has improved. Some are able to return to work. Others are able to enjoy their retirement, travel, and spend time with their loved ones and friends.

Our goal is for every transplant recipient to improve their quality of life. This does not always occur. Patients who have problems after a lung transplant may need to be hospitalized many times. They may not be able to do normal activities, they may feel short of breath, and they may need extra oxygen. Very rarely, a patient may even feel worse than they did before the lung transplant.

Survival Rates

About 85% to 95% of patients (about 85 to 95 out of 100 patients) who receive a lung transplant are living 1 year after the transplant surgery. The *median survival* of all lung transplant recipients is about 5½ years. This means that half of lung transplant recipients live less than 5½ years and half live longer.

Recipients in the UW Medicine Lung Transplant Program meet or exceed these expected survival rates.

Survival rates for all transplant programs are on the Scientific Registry of Transplant Recipients (SRTR) website at *www.srtr.org*. This data is updated every 6 months. The most recent SRTR report is attached.

Commitment and Dedication

A lung transplant is a major event for everyone involved. The patient's life is changed in many ways. A successful outcome after a lung transplant demands great dedication from the patient, their family and caregivers, and the entire UW Medicine Lung Transplant Team.

The UW Medicine Lung Transplant Team stands with our transplant patients. We are dedicated to providing life-long support, medical care, and teaching for the patient and their family and caregivers.

Please see the handout "UW Medicine Lung Transplant Team" for a full list of providers and staff on our team.

UW Medicine Lung Transplant Team

Program Director/Primary Surgeon	Michael Mulligan, MD
Medical Director/Primary Physician	Erika D. Lease, MD
Clinical Nurse Specialist	Kim Hoffman, MN, RN
Pre-Transplant Nurse Coordinators	Amy Baker, BSN, RN Taylor Christensen, BSN, RN
Post-Transplant Nurse Coordinators	Katie Gordon, BSN, RN Joe Lock, RN Reggie Pope, RN Katie Ward, BSN, RN Kim Yeary, MN, RN
Lung Transplant Doctors	William A. Altemeier, MD Siddhartha Kapnadak, MD Thomas Keller, MD Erika D. Lease, MD Ganesh Raghu, MD Kathleen Ramos, MD Mark Tonelli, MD
Lung Transplant Surgeons	Kathleen Berfield, MD Aaron Cheng, MD Farhood Farjah, MD Michael Mulligan, MD Douglas Wood, MD
Medical Assistant	Kumiko Kameda, CMA
Social Services	Angela Wagner, MSW
Pharmacists	Greg Gipson, PharmD Hillary Sobeck, PharmD Aekta Vasavada, PharmD
Respiratory Therapy	Jeff Moniz, RRT
Financial Counseling	Alan Bang Diana Rodriguez
Nutrition Services	Karissa Culley, RD Andrea Lopriore, RD Cory Zenner, RD
Program Coordinator	Aaron Tran

Questions?

Your questions are important. Call the UW Medicine Lung Transplant Team if you have questions or concerns:

Weekdays from 8 am. to 4:30 p.m.: Call 206.598.5668.

After hours and on weekends and holidays: Call 206.598.6190 and ask to page the Pulmonary Transplant fellow on call.

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